

SEPTEMBER 21, 1929

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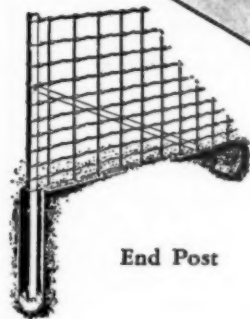
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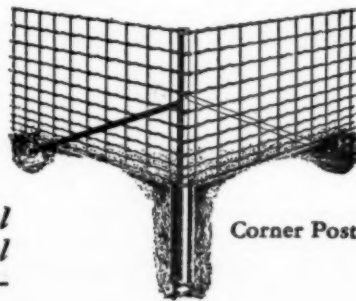
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End Post



Corner Post

Railway Age

Vol. 87, No. 12

September 21, 1929

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What Kind of Service Does the Public Want?

MOST of the railways are now more prosperous than at any time since the United States entered the great war. They are also rendering better service than ever before. Shippers are aware, that although this year's freight business is the largest in history, cars for all their requirements are being furnished promptly and moved with unprecedented expedition. Improvements in passenger service are keeping pace with those in freight service. Passenger train schedules have been shortened within recent years between practically all important points. Now come the announcements of the principal lines between New York and Chicago that they will soon begin running a number of additional trains between these two cities in 20 hours—the time heretofore made only by the Twentieth Century Limited and the Broadway Limited. Safety, speed and comfort are the principal factors in good passenger service. In these respects, and, indeed, in every way, passenger service is now better than ever before.

Railways Keeping Pace with Business Progress

In so greatly improving and speeding up their service the railways are keeping pace with the progress of business and the advancing standards of living in the United States, and, at the same time, making possible the present pace of business and living. At a time when railway service is better than ever, and when most of the railways are enjoying unusual prosperity, it is opportune to raise a question as to what kind of transportation service the public really wants. The public and especially business men, would answer unanimously that they want the best service that can be rendered at a reasonable cost. This, however, would be but the expression of a pious wish. "Money talks." What the public really wants is the kind of service for which it is willing to pay. Every intelligent person knows that, in the long run, the railways can render only the kind of service for which the public will pay. The American public can afford to pay for any kind of service it wants; and if it is not willing to pay for a high class of service there is evidence that it does not really want it.

There are gratifying indications that most of the people are willing to pay for the present kind of serv-

ice, and even better service. There is an unusually small amount of agitation for reductions of rates. There always seem to be some evidences, however, that some parts of the public, at least, are unwilling to pay for good service.

There has been a great deal of agitation within recent years for the abolition of the passenger "surcharge." The railways have needed and still need the revenues derived from this source to compensate them for the luxurious service provided on trains carrying sleeping and parlor car passengers. Doubtless the agitation for the abolition of the surcharge will be revived as the next session of Congress approaches. The public welcomes every improvement the railways make in passenger service. As it wants luxury service, it should disapprove of agitation conducted by those who seek to deprive the railways of revenues needed to compensate them for providing such service.

There is a marked inconsistency between the course of many business men in approving of the improvement that has been made in railway freight service, and seeking constantly to have it made better, and, at the same time, participating in agitation for the development of inland waterways and extension of the operation of the government-owned barge line upon them. The service rendered by carriers on inland waterways necessarily is slower and more unreliable than that rendered by rail. Even when conditions are favorable, it takes a great deal longer to move freight a given distance by canals and improved rivers than by rail. In the northern part of the country inland waterways are closed by cold weather a large part of the year. Recently the water became so low even on the lower part of the Mississippi river that the operation of the government barge line was seriously hindered, and it had to warn shippers that it could not handle their freight.

Fast Railway Service or Slow Waterway Service?

When business men are dealing with the railways they always say that fast and reliable service is essential to them. Why, then, at a time when railway service is faster and more dependable than ever before, are so many business men advocating large expenditures upon inland waterways? They say that water transportation

will be cheaper than rail transportation. It will not be if what it costs those who pay taxes, as well as those who pay freight rates, is considered. Furthermore, even if transportation by water should be cheaper, the difference in cost would be more than offset by the difference in the character of the service rendered. If American industry and commerce really want and need the kind of service that shippers of all classes tell the railways they want and need. Why do business men constantly apply pressure to the railways in behalf of better freight service, and, at the same time, advocate large expenditures by the government on inland waterways? If they really want and need the kind of service they demand from the railways, they will not use the waterways, and the bulk of the taxpayers' money that is invested by the government in the waterways will be wasted. If they use the waterways this will be proof that they do not want and need the kind of service that they demand from the railways, and that the railways are wasting money in rendering such service.

Commerce and industry really do need the kind of service now being rendered by the railways. They would be benefited by still better service. The rapid and dependable freight service of recent years, by enabling business concerns to release billions of capital from inventories, by helping to stabilize commodity prices, and by conferring other benefits upon business, has contributed in a very large measure to creating the present condition of general prosperity. The kind of service now being rendered by the railways has been made possible principally by large investments of new capital in railway properties, and the expenditure of this capital also has had a stimulating effect upon business.

The freight rates charged by the government barge line on the Mississippi river system are based principally upon the assumption that, as inland water service is slower and less reliable than rail service, the rates by water should be made at least 20 per cent lower than by rail. If, during the last six years, the country had had freight rates averaging, say, 25 per cent less than the railway rates that have been in effect, and had had, in all parts of it, only such freight service as can be rendered on the Mississippi-Warrior system and the Erie canal, would it have attained such prosperity as it now enjoys? Probably there is not a business man in the country who would answer that question in the affirmative.

The Typical Demands of Chicago

As good as railway service now is, the public is not satisfied with it, and would not be satisfied with it in the future. The newspapers and commercial organizations of Chicago, for example, are constantly agitating for the development of inland waterways, but, at the present time, are also agitating for the construction of new passenger stations, for the electrification of terminals, for elevation of tracks and for faster passenger trains. The Chicago Association of Commerce applies constant pressure to the railways to speed up the move-

ment of freight. For the railways to make the improvements demanded by the newspapers and business interests of Chicago alone would require the investment of many hundreds of millions of dollars. They are subjected to similar demands in all parts of the country. It is natural and reasonable that the public should want improvements in railway service, and should want the improvements made in the properties of the railways that are essential to the rendering of better service. But the demands of the public cannot be met without a continuance of as large railway capital expenditures as have been made within recent years, or even an increase in them. The railways cannot raise and invest the necessary capital unless they are allowed to enjoy a corresponding measure of prosperity.

The most important railway question presented at the present time, therefore, is the same one that has been presented for years. This is, what kind of transportation is the public willing to pay for? The railways are now comparatively prosperous. Their present prosperity has been attained in spite of advances in wages and reductions of rates, and almost entirely through economies in operation. Their present comparative prosperity is something new, and has been attained only during a year of unprecedented business activity. Will the public cause the railways to be so regulated as to enable them, over periods of years, to prosper as much, or more, as at present? If so, it can rest assured that as rapidly as practicable their managements will make the improvements in railway properties and operation necessary to give it the kind of service that it says it wants; but this will require years of prosperity, years of work and the investment of many billions of dollars.

Throughout the last quarter of a century the public, through governmental agencies, has largely determined what kind of service it has got. The public, through the same agencies, will continue, in equal measure, to determine what kind of service it will get in future.

Accounting Classification Case Merits Careful Study

COMMISSIONER Eastman's proposed report in the general accounting revision case, *Ex Parte 91*, states that in the past the work of "formulating" the railroad accounting classifications has been carried on largely "in co-operation with the Railway Accounting Officers Association." For the sake of clarity, however, it might well have been added that the degree of co-operation permitted the accounting officers has never extended beyond granting them the privilege of making recommendations, comments, or suggestions—with the right of decision invariably reserved by the commission or its Bureau of Accounts. The proposed report also points out that other interests besides the railroads have likewise in the past been consulted in formulating the classifications. Apparently, therefore, the only essen-

tial innovation in procedure in the present case has been that the advice and recommendations of interests outside the commission—railroad and other—have been presented by public hearing, rather than informally, and such opinions have become a matter of record.

The introduction of procedure by public hearing in the handling of a matter of this kind involves the establishment of precedent. It is a matter of concern, therefore, to all parties of interest that the report in this case, when issued in final form, shall be as free from reasonable questions as it is possible for it to be. Thoroughgoing discussion of the report in its proposed form, therefore, seems imperative. The compilation of a report based upon a record as great as that in this proceeding is a difficult task. Too long a decision is, of course, undesirable. Yet, in the interest of clarity and justice, it is desirable that all decisive and pertinent testimony be accorded, at least, some recognition.

In the hearings in this case the National Industrial Traffic League presented a witness who testified extensively. This witness was in the employ of the league and was the protagonist of the so-called "alternative plan" and an exponent of cost accounting. A great deal of space was devoted in the proposed report to the testimony of this witness. Another witness, who appeared at the invitation of the commission at the suggestion of the N. I. T. League, testified adversely to the "alternative plan." It is undoubtedly disappointing to many who are interested in this case that the testimony of this latter witness was not once mentioned in the proposed report.

The proposed report says that the evidence of the Taylor Society was presented "at the request of the presiding Commissioner." The report of the special committee on railway accounting rules to the 1928 convention of the N. I. T. League reads: "The appearance of this Society was arranged for by the League." This apparent contradiction is undoubtedly just a detail of wording which can easily be cleared up when the commission puts the report into final form. Nevertheless it is a point which, certainly, no one would wish to see overlooked in a case which will establish precedents for future procedure.

The comparatively brief consideration given in the proposed report to the changes in accounting classifications recommended by the railroad representatives is doubtless a disappointment to many persons who are interested in this case. Whatever the merits or demerits of these recommendations, they at least are matters which are of the liveliest concern to practical railway accountants, and the commission by embodying in its final report a thorough discussion of them would thereby make a contribution of practical value to railroad accounting science.

It is too much to expect that many accountants outside the railroad field, or railroad men outside the accounting department, will read the 2800 pages of record in this case. All but railway accounting specialists will

have to depend upon the final report of the commission for information in a form which they will have time to assimilate. It may be difficult to compress this information into compact form without ignoring important testimony or overemphasizing certain points. Yet it is a task which the commission may undertake with the assurance that the result will repay the effort. And the railroads should do their part by making their briefs thoroughgoing, pointed, and constructive in tone.

A British Improvement on the Hoch-Smith Idea

ELSEWHERE in this issue is published an article outlining the plan of railway rate rebating which has been adopted in Great Britain to aid in the rehabilitation of depressed industries. Briefly the plan, which becomes effective October 1, provides that selected industries be relieved of certain local taxes and also be granted rebates on their freight charges. In order that they might be in a financial position to grant these rebates, the railways are included among the industries to receive the relief from taxes. While other industries however, retain the savings in both taxes and freight rates, the railways receive no direct benefit from the scheme, but are required to pass on their savings in taxes to other participants in the form of rebates. As pointed out in the article, that part of the plan involving freight charge rebates has been operating since December 1, 1928, under an anticipatory statute passed by Parliament in order to bring immediate relief to the selected industries. Under this anticipatory scheme the "Railway Freight Rebates (Anticipation) Fund", set up by Parliament, has reimbursed the railways for the rebates which, after October 1, will find their source in the tax savings of the carriers. In order to reimburse the state for its loss of revenue a tax on gasoline is to become part of the general plan.

Here then, as pointed out in the *Railway Age* of January 19, page 183, is a plan which, like the Hoch-Smith resolution in this country, assumes that prosperity will come to depressed industries as a result of freight rate reductions. A study of its provisions, however, will reveal that it is much fairer to all concerned than is the Congressional enactment. The British plan is predicated upon a base of intellectual honesty, stating clearly its purport and scope. In other words there is no innuendo or phrase-making in the attempt to subsidize certain industries. It frankly admits that it is a subsidy and thus sets up the machinery of subsidization.

The Hoch-Smith resolution, on the other hand, declared for a new idea of rate-making when it directed that in the fixing of freight rates the Interstate Commerce Commission consider the economic conditions prevailing in industries whose rates may come under its review. But who is to finance the rate reductions granted because of alleged industrial depressions? Ob-

viously the burden, in the form of increased rates, must ultimately fall on products of other industries regarded as not in depression. This is inevitable in the long run, for if adequate railway service is to be maintained, carriers, themselves not earning the declared "fair return," cannot, unaided, continue to subsidize depressed industries.

Conceding, therefore, for the moment, that a subsidy is the proper economic solution of these depressions (which is debatable certainly), how much fairer the British plan is. It is an open subsidy and admits its true nature in this regard. It does not expect one industry, such as the railway, to subsidize others. The railways are reimbursed for their losses from rebates—the needed funds come from their taxation savings. Unaffected industries are thus treated fairly in that they are not burdened with rate increases to compensate carriers for undue rate reductions on other traffic. And finally with such an open and above-board plan the British public will be able to see clearly how it works, know definitely its cost, and hence determine its economic feasibility.

The Rail Motor Car Meets an Economic Need

IN the comparatively short period of seven years rail motor car orders in the United States grew from practically nothing in 1922 to 153 units in 1928, the most powerful cars built in the latter year being the dual power plant 800-hp. cars now operated on the Chicago, Rock Island & Pacific. This increase in orders is evidence that rail motor equipment fills a real economic need on the part of the railroads and is satisfactorily meeting the severe mechanical and operating requirements imposed on it. Still more extensive use of this type of equipment is practically assured because of the opportunity it affords for providing more frequent and cheaper service to shippers.

This point was emphasized at a recent meeting of the Western Railway Club when a comprehensive treatment of the entire subject of rail motors was given in a paper by E. Wanamaker, electrical engineer of the Rock Island. Discussion of the paper developed a number of facts of interest. For example, it was stated that because of the constant torque of the traction motors and the even distribution of car weight over two 4-wheel trucks, rail motor cars can negotiate light track at speeds at least 15 miles an hour in excess of those that are safe for locomotive operation. Roller bearings are said to be an advantage, especially on the driven axle, eliminating waste grabs, and reducing starting resistance and maintenance expense.

The opinion was expressed that these cars can be lighted from the power plant storage battery, but that with more than one trailer the demands on the storage battery will be excessive, with consequent undesirable

interference with power plant operation. The heating of rail motor equipment subject to severe winter temperatures also presents a real problem, the indication being that individual hot water heating units can be used successfully, with proper attention to securing the right amount of draft, irrespective of wind direction and car movement.

Eliminating Train Stops at Permissive Signals

ORDINARILY where the local grade conditions permit, an intermediate permissive automatic block signal is so located that a tonnage train stopped at the signal can be started again without difficulty. On long ascending grades where trains cannot be started without serious delays a great many roads are using so-called grade signals, consisting of a disk attached to the signal mast which gives the engineman authority to proceed at slow speed, without stopping, past such a signal when it is indicating that the block is occupied. The same type of grade signals are used on some roads at signals where the tracks run through towns with numerous street crossings at grade. The desired result in such cases is to prevent blocking the streets.

The point is that if these train stops can be eliminated safely at some permissive automatic signals, why not at all such locations, especially for heavy tonnage trains? This result has in effect been accomplished on those sections of the Atchison, Topeka & Santa Fe, the Illinois Central and the Chicago & North Western, where automatic train control with cab signals is in service without the use of permissive wayside automatic signals. The Rock Island has gone a step further in that the wayside automatic signals have been retained, but the requirement for the train stop has been eliminated on automatic train control territory.

On three of the train control installations mentioned, the speed is automatically limited in an occupied block, and, likewise, where grade signals are employed, the speed is naturally limited by grade conditions. However, it is conceivable that the speed when entering and proceeding in an occupied block can be limited by rule. In fact, this is exactly the requirement in effect on almost all roads, the only difference being that the stop must first be made at the signal.

The progressive thought of today is that the heavy trains, as well as those following, can be expedited safely by permitting these trains to proceed at slow speed past any permissive wayside signal when the signal is indicating that the block is occupied. Various individuals and associations have discussed this development for years, and at least one large road is giving the change serious consideration in conferences of signal and operating officers.



Sunnyside Yard, Long Island City, Where Passenger Equipment Is Handled

Taking Care of 700 Trains a Day

Pennsylvania station operations at New York require the handling of 40,000 cars a week

MORE than 700 passenger trains use the Pennsylvania station at New York each week day, and 500 each Sunday. This necessitates the handling of approximately 5,800 cars per week day and 4,500 cars on Sunday. The heaviest business ever handled on any one day was on September 3, 1928, when 802 loaded trains, consisting of 6,409 cars, took passengers into and out of this station.

While the station itself is large, the congested metropolitan area of Manhattan Island in which it is situated precludes provision for sufficient yard and storage tracks in the immediate vicinity of the station. Accordingly, practically all trains are moved through tunnels under the East river, to yards on Long Island; the Pennsylvania trains and the Long Island steam trains going to Sunnyside yard at Long Island City, L. I., 3.6 miles east of the station, and Long Island electric trains to the yard at Jamaica, L. I., 11.3 miles east of the station.

The station operations really extend from Manhattan Transfer, N. J., 8.8 miles west of the station, where the electrification begins, through the Hudson river tunnels to the station proper, and eastward, via the tunnels under the East river to Sunnyside. Since all the facilities on Manhattan Island are underground, the underground operations are continuous for 12.4 miles, from the west end of the Hudson river tunnels to the east end of the East river tunnels.

The Traffic Handled

The normal daily train movement into and out of this station, including Sunday, holiday and week-day business, is shown in Table I, which covers the first ten days of January.

The Pennsylvania station is used by the Pennsylvania proper, the Long Island, the Lehigh Valley and certain

joint through trains of the Pennsylvania-New York, New Haven & Hartford. The division of this traffic on a typical day is indicated by a statement of the operations on January 9, 1929, as follows:

Railway	Trains In	Trains Out	Total Trains	Cars In	Cars Out	Total Cars
Pennsylvania	105	108	213	910	943	1,853
Long Island	230	236	466	1,775	1,813	3,588
N. Y., N. H. & H.	10	10	20	93	96	189
Lehigh Valley	6	7	13	52	60	112
Totals	351	361	712	2,830	2,912	5,742

To handle this large business successfully, it has been necessary to plan the operations carefully, from the assignment of locomotives to handle the trains, to the

Table I. Normal Daily Train Movement

Date	Day	No. of Trains	No. of Cars
January 1	Tuesday	558	4,640
2	Wednesday	763	6,185
3	Thursday	734	5,975
4	Friday	728	5,846
5	Saturday	758	6,067
6	Sunday	497	3,911
7	Monday	734	5,823
8	Tuesday	723	5,754
9	Wednesday	712	5,742
10	Thursday	714	5,791
Average		692	5,573

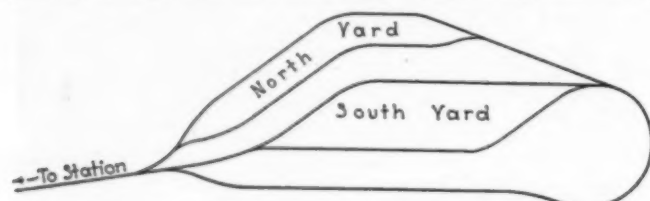
methods of controlling the movements through the various tunnels. All of these operations have been carefully studied, with a view to securing the maximum utilization of the facilities available.

Yard Facilities

In the building of the station and its surroundings, as much space as possible was set aside for temporary storage tracks. The facilities at the station proper include 17 through and 4 dead-end loading and unloading tracks, with 11 island platforms of varying lengths

between. With the number of trains using the station, no train storage is possible on any of these tracks. The only car storage that is possible, beyond the time employed in loading and unloading passengers, is for sleeping cars on late trains which are spotted in the station and made ready for occupancy some hours prior to departure.

The station yard facilities are situated immediately west of the station. These include five small storage yards, as indicated in the accompanying diagram. They



Operating Diagram of Sunnyside Yard

are used to their maximum capacity in handling trains with short lay-overs. Two of the yards, A and D, are used for the temporary storage of the hourly trains from Philadelphia to New York. All such trains arriving between 9 a.m. and 6 p.m. are handled at these station yards. Three local trains for Philadelphia are also made up in these yards daily. Many of the Long Island suburban trains with short lay-overs, are handled in B, C and E yards, the latter also being used as an express yard.

The capacities of these station yards, based on 65-ft. cars, are as follows:

Yard	No. of Tracks	Total Car Capacity
A	5	34
B	5	43
C	10	50
D	6	40
E	7	55
	33	222

Sunnyside yard, at Long Island City, containing 73 tracks, is one of the largest yards in the country for passenger equipment exclusively. All Pennsylvania trains, with the exception of the Philadelphia runs previously referred to, are turned, cleaned and re-equipped at this yard. All Long Island steam passenger trains are also handled here. The turning of trains is facilitated by a loop at the east side of the yard. Inbound trains that require turning are run past the yard on the south and around the loop and enter the yard from the east end, in proper order for the return movement to the station.

Station Operations

The New York division of the Pennsylvania extends to the east end of Sunnyside yard. The dispatchers of this division handle the trains through the Hudson

river tunnels and to the west end of the station. The north tunnel is normally used for westbound movement, and the south tunnel for eastbound, but both tunnels are signalled for either-direction traffic, and are so used on occasion. As soon as the trains arrive at the interlocking plant controlled by what is known as A tower, at the west end of the station, they come under the jurisdiction of the train directors, situated in that tower, who exercise supervision over all movements between A tower and the east end of Sunnyside yard. This movement is controlled by seven interlocking plants, of which A tower is the largest, having 144 working levers, and 35 spare spaces. This tower controls movements on the tracks at the west end of the station, KN tower controls C yard, C and JO towers the two north and two south East river tunnels respectively, F. tower, all of these tunnels, while R and Q towers control the east and west ends of Sunnyside yard.

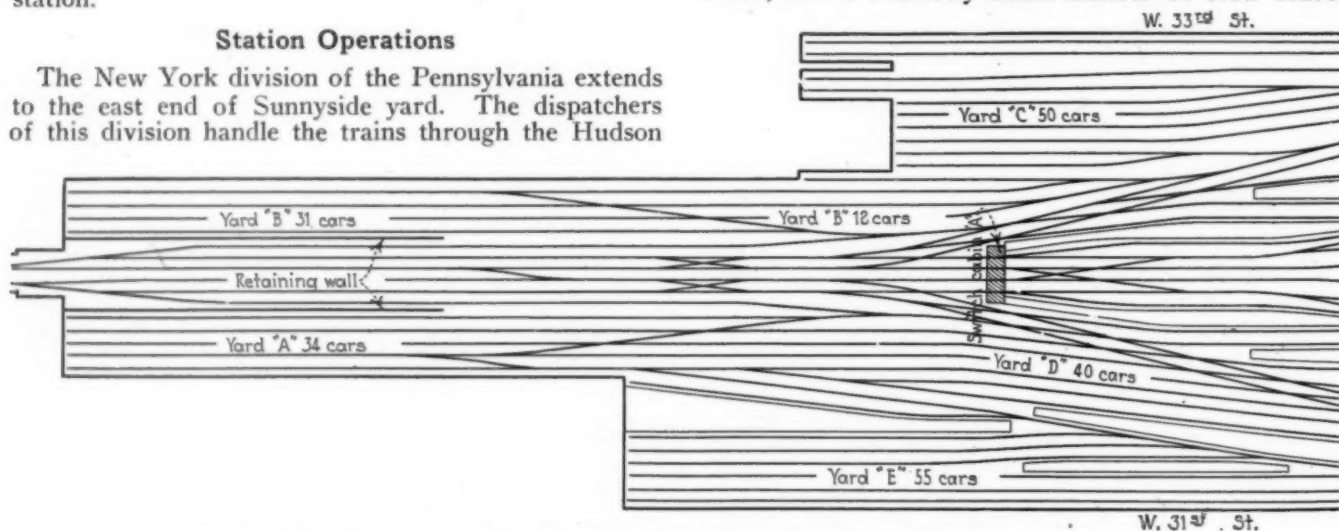
The operations in the station itself are supervised by officers known as train and locomotive dispatchers, who handle all special movements, requests for extra cars, etc. The road dispatchers notify these men of the movement of trains over the New York division, so that tracks may be vacated in readiness to receive them. This information is transmitted by a telautograph system, having 3 sending and 20 receiving stations, to the train director at A tower, to the stationmaster, bulletin board tender, information desk and other persons needing it.

The Long Island suburban trains are unloaded within 1 min. 30 sec. to 2 min. and are moved from the station to the yard almost immediately. Departing suburban trains are allowed 10 minutes for loading. Through trains are spotted at the platforms at least 20 minutes in advance of their leaving time.

The morning rush period comprises the two hours between 7:30 and 9:30, when 56 Long Island trains arrive and 23 depart, together with 16 Pennsylvania and Lehigh Valley trains arriving and 8 Pennsylvania trains departing. During this period, there are 103 loaded trains arriving and departing, or at the rate of nearly one a minute. The evening rush period takes place between 4:30 and 7, when 64 suburban trains depart and 27 arrive, and 14 through trains depart and 15 arrive.

Tunnel Operations

The traffic moving through the four East river tunnels consists of both loaded and empty trains. The loaded movement includes Long Island through and suburban trains, and a relatively small number of New Haven



Track Arrangement at West End of Pennsylvania Station, Showing Storage Yards

through trains moving in both directions. The empty movement consists of Pennsylvania trains and Long Island steam trains moving to and from Sunnyside yards, and Long Island suburban trains. As previously stated, many of these, after taking passengers in, are placed in the station yards until they are ready to go out again on regular schedule. However, during the rush hours of the morning, the number of westbound trains far exceeds the eastbound trains and in the evening rush hours, the situation is reversed. The surplus trains in the morning are deadheaded through the tunnels to the Long Island passenger train yard at Jamaica, L. I., 11.3 miles from the station and in the evening, these trains are deadheaded back to the station.

The frequency of movement is indicated by Table 2, which shows the number of loaded and empty trains handled through each tunnel on a typical week-day. It will be observed that there are 730 movements through the four tunnels daily. The largest number of movements takes place between 7 a.m. and 3 p.m., when 313 movements pass through the four tunnels. The largest movement through any one tunnel in eight hours is 99, via line 3, between 3 p.m. and 11 p.m.

The four tunnels are grouped in pairs, and for operating convenience the four routes between the station and Sunnyside yard are known as Lines 1, 2, 3 and 4. Lines 1 and 2 traverse the southern pair of tunnels, and Lines 3 and 4 the northern group, as shown in the accompanying diagram. It will be observed that Lines 1 and 3 pass along the south side of the yard and connect directly with the track loop entering the yard from the east end. Lines 1 and 3 are, therefore, used principally for eastbound movements, and Lines 2 and 4 are westbound.

All the through trains have definite assignments, amounting practically to a schedule, as to time and line to be used, covering their movement from the station to Sunnyside. Line 1 is used principally for the deadhead movement of through trains from the station to Sunnyside, where they are turned on the loop and made ready for outbound movement. Between 3:46 p.m. and 6:08 p.m., east bound Long Island suburban trains also use this line, in loaded movement. Line 2 is used for bringing empty trains from Sunnyside to the station for loading. During the morning rush period, between 7:50 and 9:36, this line is also used for westbound Long Island suburban trains. Six through trains also move eastbound over this line daily against the current of traffic. These are Pennsylvania trains which did not require turning and they are taken directly into the yard at the west end,

thus avoiding the movement past the yard and around the loop. These trains are handled via Line 2 at periods when no other traffic is moving and are protected by closing this line to all traffic, except the particular train which is moving against the current of traffic.

Line 3 is used almost exclusively for outbound Long Island trains, both loaded and empty, and Line 4 takes care of the inbound movement of these same trains.

Crew and Locomotive Assignments

The handling of trains between Manhattan Transfer and Sunnyside yard, including the switching at the station is done by engine crews in pool service, some of whose tours of duty terminate at the Pennsylvania station, others at Sunnyside yard. The electric locomotives used in this service are double and triple-crewed to obtain the maximum utilization. The regular assign-

Table II—Movements—East River Tunnels

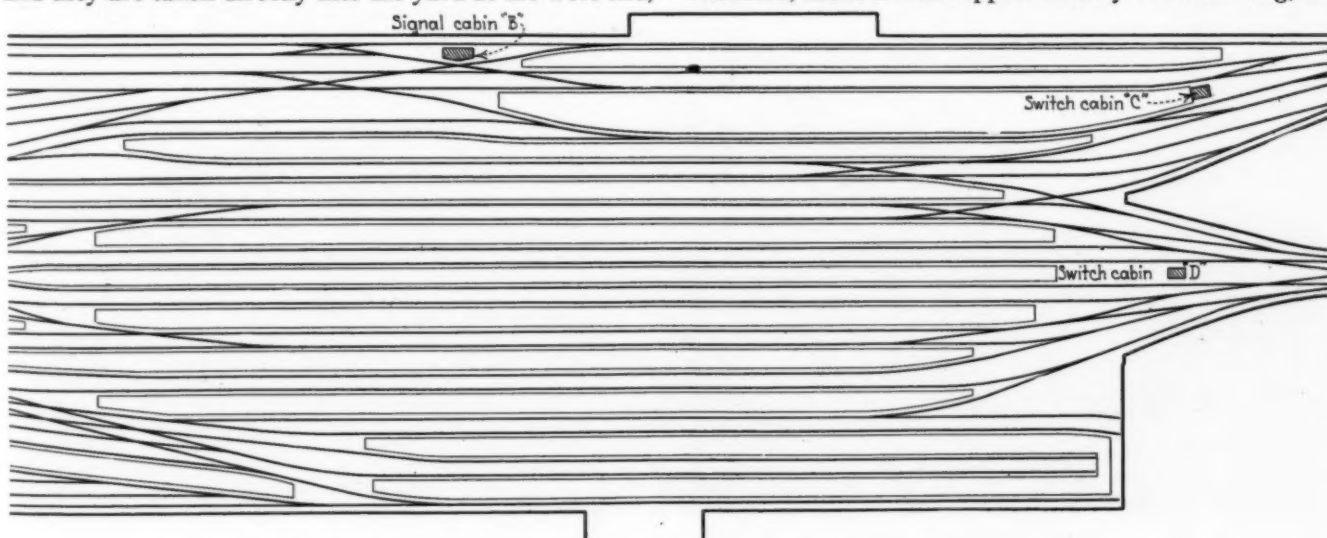
		Typical 24-Hour Period				
		Line 1	Line 2	Line 3	Line 4	Total
7 a.m.	Pennsylvania	48	59	0	0	107
to						
3 p.m.	Long Island	12	19	85	90	206
	Total	60	78	85	90	313
3 p.m.	Pennsylvania	37	44	0	3	84
to						
11 p.m.	Long Island	11	5	99	87	202
	Total	48	49	99	90	286
11 p.m.	Pennsylvania	23	27	7	0	57
to						
7 a.m.	Long Island	0	3	39	32	74
	Total	23	30	46	32	131
	Grand Total ..	131	157	230	212	730

ment consists of 26 crews and locomotives on each of the first two shifts, which extend from 7 a.m. to 3 p.m., and from 3 p.m. to 11 p.m., while 19 crews and locomotives are assigned to the third tour, from 11 p.m. to 7 a.m. Seven of these locomotive assignments are, therefore, double-crewed, and the other 19 assignments are triple-crewed.

The jobs are directed by the train and locomotive dispatchers and are so arranged that, when the crew is due for relief, in most cases, it will be in the vicinity of either Sunnyside or the station, depending upon where the crew's tour of duty terminates.

A Train Eighty Miles Long

The number of cars moving into and out of this station daily, not counting the locomotives, would, if consolidated, make a train approximately 80 miles long, the



Track Arrangement at East End of Pennsylvania Station

front end of which would be at the Pennsylvania station in New York, while the last car would be only 10.3 miles from Broad Street station in Philadelphia. To handle this vast volume of traffic, underground, and faced with unavoidable space restrictions, requires the utmost co-ordination in carrying out the work and in its supervision, particularly the latter. Each detail must be, and has been, worked out to obtain the utmost efficiency and smoothness in operation, providing at the same time for the comfort and convenience of the millions of passengers using the station.

Non-Condensing Turbine Locomotives

THE Oxelösund - Flen - Westmanlands Railways which are owned and operated by the Trafik A.B. Grängesburg-Oxelösund, a large ore mining company in Sweden, recently ordered two non-condensing turbine locomotives from Ljungströms-Angturbin. These locomotives are similar in design to the condensing locomotives built by Ljungström, and which have been described in previous issues of the *Railway Age*.^{*} They are being built in the shops of Lydquist & Holm, Trollhättan, Sweden, which firm also built the Ljungström turbine locomotives for the Swedish State and Argentine State Railways. The turbine is located in front of the smoke box and transmits power to the side rods through triple reduction gearing, the same design of transmission as that used on the condensing locomotives.

The boiler generates steam at slightly over 190 lb. per square inch. Steam enters the turbine at 169 lb. and leaves the turbine with a back pressure of approximately 6 lb. The design of the boiler and engine possesses many characteristics similar to that of the Ljungström condensing turbine locomotives built last year for the Swedish State Railways and the London, Midland & Scottish (England). The superheating surface of 1,076 sq. ft., however, is considerably greater than that of these two condensing locomotives and the combined evaporative and superheating surface of 2,693 sq. ft. is also somewhat larger.

The last Ljungström locomotive which was built for the Swedish State Railways has a superheating surface of 785 sq. ft., while the locomotive built for the London, Midland & Scottish has a superheating surface of 640

sq. ft. The combined evaporative and superheating surface of the former is 2,092 sq. ft., and that of the latter is 2,260 sq. ft.

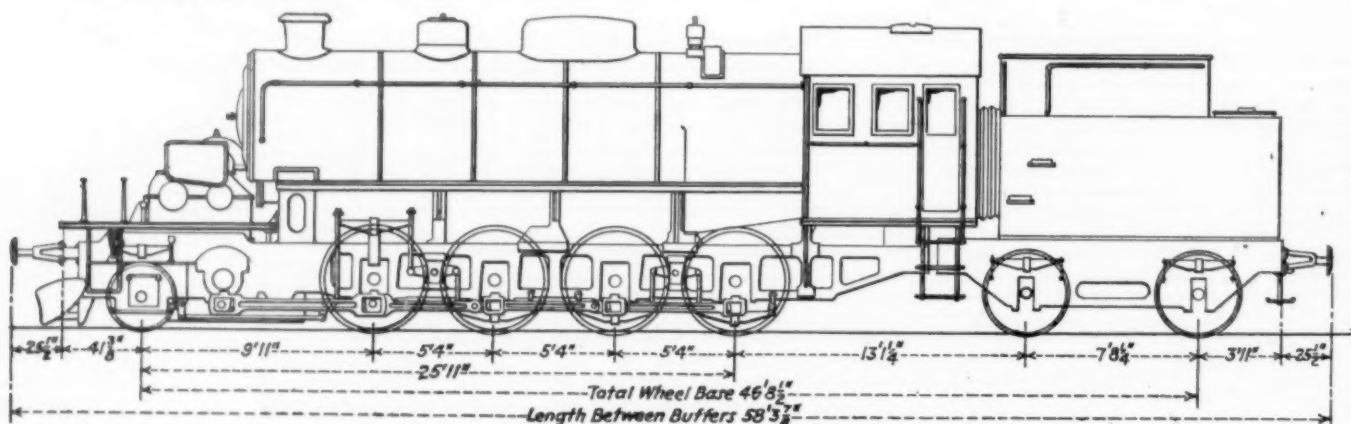
The two noncondensing turbine locomotives are to be used for hauling ore trains over a road a large part of which is in mountain territory. These locomotives, because of their even torque, are expected to develop about

Table Showing the Principal Dimensions, Weights and Proportions of the Ljungström Non-Condensing Turbine Locomotives

Railroad	Oxelösund-Flen-Westmanlands
Builder	Ljungström Angturbin (Sweden)
Service	Freight
Weights in working order:	
On drivers	158,731 lb.
Total engine	261,249 lb.
Diameter, driving wheels, outside tires	53 3/4 in.
Wheel bases:	
Driving	16 ft.
Total engine	46 ft. 8 1/2 in.
Boiler:	
Type	Straight top
Steam pressure	190 lb.
Fuel, kind	Coal
Grate area	32.3 sq. ft.
Heating surfaces:	
Total evaporative	1,616.8 sq. ft.
Superheating	1,076.43 sq. ft.
Combined evap. and superheating	2,693.23 sq. ft.
Turbine:	
Steam pressure before entering turbine	169 lb.
Steam pressure after leaving turbine	5.87 lb.
Steam temperature	752 deg. F.
Tender:	
Water capacity	3,975 gal.
Coal capacity	5.52 tons
Tractive force	47,399 lb.
Maximum speed	37.3 m.p.h.
Weight proportions:	
Weight on drivers ÷ total weight engine, per cent.	60.75
Weight on drivers ÷ tractive force	3.35
Boiler proportions:	
Tractive force ÷ comb. heating surface	17.6
Comb. heating surface ÷ grate area	83.4

25 per cent greater tractive force than a piston locomotive having the same adhesive weight. It is claimed that this design of turbine locomotive will not be more expensive to build than a piston locomotive that develops the same tractive force. The designers estimate that about 25 per cent economy in fuel consumption will be attained over that of a superheated piston locomotive of modern design which develops the same tractive force. The principal weights, dimensions and proportions are shown in the table.

THE BEAUMONT HIGH SCHOOL and the McKinley Junior High School at St. Louis, Mo. have added freight traffic to their curriculums. Classes are conducted on two evenings a week, the instructors being J. Kirk Wells, chief tariff clerk of the Terminal Railroad Association, in the Beaumont High School and B. M. Godfrey, commerce counsel of the Shippers' Freight Traffic Association, in the McKinley Junior High School.



Side Elevation of the Ljungströms Non-Condensing Turbine Locomotive

^{*} Complete descriptions of Ljungström condensing turbine locomotives, with drawings and illustrations, were published in the *Railway Age*, September 23, 1922, page 561, and August 18, 1928, page 315.



Pittsburgh & Lake Erie 65-Ft. Gondolas Built by the Merchants Despatch, Inc.

Pittsburgh & Lake Erie Buys 65-Ft. Gondolas

The cars are designed to eliminate double loading in transporting mill lengths of steel and similar long lading

THE Pittsburgh & Lake Erie has recently placed in service 100 gondola cars designed to handle mill lengths of steel in single loading that represent the culmination of several years work in car design and service experiments to eliminate the added expense and inconvenience of double loading in the shipment of steel and other long lading. While these cars are distinctively Pittsburgh & Lake Erie design they are practically the same general design as several experimental cars that were built for the Carnegie Steel Company and placed in the service of that company in April, 1925. These latter cars were described in the *Railway Age* for March 10, 1928.

The original cars built for the Carnegie Steel Company were designed for a uniformly distributed load of 140,000 lb. plus 10 per cent and to carry two-thirds of this load over 10 ft. of space at the center of the car with a fibre stress of not over 15,000 lb. per sq. in.

In comparing the new P. & L. E. cars with the original Carnegie cars one or two outstanding differences in design will immediately be noticed. In the new cars the designers have been able to decrease the length of the cars over the striking plates without decreasing the inside length by altering the design of the end sills. This change made it possible to shorten the distance from the center of the trucks to the striking plate seven inches, making the present dimension 5 ft. 10-1/2 in. The inside height of the car is six inches more than the Carnegie cars.

One of the most important changes is in the design of the center sills. On the Carnegie cars the center sills were built-up fish-belly members 33 in. deep which, because of the great depth, provided road clearance of only 10-1/2 in. above the top of the rail. For practically all purposes this was sufficient but it was anticipated that there might be difficulty in negotiating some



The Method of Loading Mill Lengths of Steel Where Double Loading Is Necessary

hump-yard tracks. Therefore, in designing the P. & L. E. cars, the center sills were constructed of two 15-in. 40-lb. channels with a 21-in. by $\frac{3}{8}$ -in. cover plate, permitting a road clearance of 2 ft. 4- $\frac{1}{2}$ in. above the top of the rail.

The side sills and the car sides are integral, of the girder type and made of 5/16-in. plate. The top side members are 5 in. by 4- $\frac{1}{2}$ in. by 7/16-in. bulb angles and the side stakes are pressed steel U-shapes. The

Principal Dimension of P. & L. E. Cars Compared with Original Carnegie Steel Company's Cars

	P. & L. E.	Carnegie Steel
Length over striking plate.....	67 ft. 7 in.	68 ft. 9 in.
Truck centers	55 ft. 10 in.	55 ft. 10 in.
Center of truck to striking plate..	5 ft. 10 $\frac{1}{2}$ in.	6 ft. 5 $\frac{1}{2}$ in.
Length inside	65 ft. 0 in.	65 ft. 0 in.
Height inside	3 ft. 6 in.	3 ft. 0 in.
Width inside	7 ft. 8 $\frac{3}{4}$ in.	7 ft. 8 $\frac{3}{4}$ in.
Height from rail to top of bulb angle	7 ft. 1 $\frac{3}{4}$ in.	6 ft. 6 $\frac{3}{4}$ in.
Height from rail to top of floor..	3 ft. 7 $\frac{3}{4}$ in.	3 ft. 7 $\frac{3}{4}$ in.
Width over bulb angle.....	8 ft. 6 in.	8 ft. 6 in.
Coupler swing	0 ft. 12 in.	0 ft. 11 in.
Rail to center sill at bolster.....	2 ft. 4 $\frac{1}{2}$ in.	2 ft. 4 $\frac{1}{2}$ in.
Depth center sill at bolster.....	1 ft. 3 in.	1 ft. 3 in.
Depth center sill at center.....	1 ft. 3 in.	2 ft. 9 in.
Depth side sill at bolster.....	0 ft. 10 in.	0 ft. 11 $\frac{3}{4}$ in.
Depth side sill at center.....	1 ft. 6 $\frac{3}{4}$ in.	1 ft. 3 in.
Number cross bearers, each side..	10	8
Number diaphragms	12	14
Thickness of floor	0 ft. $\frac{3}{4}$ in.	0 ft. $\frac{3}{4}$ in.
Thickness of sides	0 ft. $\frac{3}{8}$ in.	0 ft. $\frac{3}{8}$ in.
Size of cover plate.....	21 in. by $\frac{3}{4}$ in.	21 in. by $\frac{3}{4}$ in.
Distance from rail to bottom of center sill	2 ft. 4 $\frac{1}{2}$ in.	0 ft. 10 $\frac{1}{2}$ in.
Distance from rail to bottom of side sill	2 ft. 0 $\frac{3}{4}$ in.	2 ft. 4 $\frac{1}{2}$ in.
Channell side stakes (each side)..	25 Pressed "U"	25 9-in. 20-lb. channels
Center sill	2 15-in. 40-lb. channels	Built-up fish-belly type
Side sills	Extension of side	Extension of sides style

body bolster is of the box type designed to meet loading requirements and cross-bearer diaphragms on each side carry the load from the center members to the sides. The cars are equipped with Dreadnaught corrugated steel drop end doors.

The trucks have cast-steel side frames with truck boxes cast integral and the wheels are forged steel 33 in. in diameter. The couplers are of the swivel butt type.

These cars were built at the Depew, N. Y., plant of the Merchants Despatch, Inc. The table accompanying this article shows the principal dimensions of the cars and also a comparison of these dimensions with those of the original cars built for the Carnegie Steel Company.

* * *



Two Sections of the New York Central's "Twentieth Century Limited," at Elkhart, Indiana

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended September 7 amounted to 1,017,072 cars, an increase of 25,687 cars as compared with the corresponding week of last year and of 27,273 cars as compared with 1927. All districts except the Northwestern and Central Western reported increases as compared with last year and all but the Southern, Pocahontas and Northwestern showed increases as compared with 1927. Loading of grain and grain products and livestock showed reductions as compared with the corresponding weeks of both preceding years, while loading of ore and miscellaneous freight showed increases as compared with both years. The summary, as compiled by the Car Service Division of the American Railway Association, (previous year's figures revised) follows:

Revenue Freight Car Loading

Districts	Week Ended Saturday, September 7, 1929		
	1929	1928	1927
Eastern	218,505	213,468	209,261
Allegheny	212,605	194,054	199,439
Pocahontas	59,250	54,933	61,264
Southern	141,796	131,482	148,317
Northwestern	158,468	168,068	159,043
Central Western	144,234	148,873	135,657
Southwestern	82,214	80,507	76,818
Total Western Districts	384,916	397,448	371,518
Total All Roads	1,017,072	991,385	989,799
Commodities			
Grain and Grain Products	45,725	57,873	57,653
Live Stock	27,266	28,973	28,900
Coal	162,415	156,308	163,885
Coke	11,722	9,842	9,706
Forest Products	60,633	58,243	62,539
Ore	67,186	60,575	54,140
Merchandise L. C. L.	234,552	230,910	234,720
Miscellaneous	407,573	388,661	378,256
September 7	1,017,072	991,385	989,799
August 31	1,160,210	1,116,711	1,117,360
August 24	1,135,567	1,080,698	1,109,341
August 17	1,100,267	1,057,909	1,066,828
August 10	1,090,616	1,044,268	1,049,639
Cumulative total, 36 weeks.....	36,358,083	34,745,606	35,791,806

The freight car surplus for the last week of August averaged 158,112 cars, including 87,985 box cars, 31,021 coal cars, 21,654 stock cars and 11,884 refrigerator cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended September 7 totalled 70,119 cars, a decrease from the previous week of 7,438 cars, accounted for largely by the Labor Day holiday, and a decrease of 3,736 cars from the same week last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
September 7, 1929	70,119	36,518
August 31, 1929	77,557	39,048
August 24, 1929	69,906	37,875
September 8, 1928	73,855	36,706
Cumulative Totals for Canada		
September 7, 1929	2,407,856	1,480,615
September 8, 1928	2,353,835	1,402,208
September 10, 1927	2,191,672	1,352,122

A FEDERAL TRANSPORT COUNCIL comprised of the commonwealth minister of transport and the minister in charge of transport in each state will be created in Australia, according to recent reports made public by the United States Department of Commerce. The work of the council will be to evolve a plan for the complete separation of rail finances from the State consolidated revenue and loan accounts. Other matters scheduled for consideration include an inquiry into gage uniformity proposals, interstate railway rates and the economic utilization of ports.

C. & O. Shows Steady Progress

Holds down operating expenses in face of increasing business and earns 11.8 per cent more net

IN the first seven months of the current year, the Chesapeake & Ohio had freight revenues of \$65,877,364 and gross operating revenues of \$72,569,534, totals which were, respectively, 5.1 per cent and 4.2 per cent higher than those of the same period in 1928. With this material increase in gross earnings, the rise in operating expenses was but 0.7 per cent and net railway operating income for the seven months' period of 1929 was \$19,881,152, or 11.8 per cent greater than in the same period last year.

The improved efficiency of operation is particularly noticeable in the item of transportation expenses, which actually declined 1.6 per cent in the face of the increase of 4.2 per cent in gross revenues. The transportation ratio for the first seven months of 1928 was 27.2; for the same period this year it had declined to 25.7, or 5.5 per cent. Maintenance of way expenses this year increased 7.3 per cent and the maintenance of way ratio rose by one-half a point to 15. Maintenance of equipment expenses, on the other hand, were virtually the same in the first seven months of this year as for that period last year. Since operating revenues increased, however, the maintenance of equipment ratio declined from 23.8 to 22.8. The obvious conclusion to be drawn from these figures is that the satisfactory improvement shown in performance has been secured entirely from improved efficiency and not by any curtailment of maintenance activity. This being the case, the reduction of the operating ratio from 69.9 in the first seven months of 1928 to 67.7 in the same period this year carries considerable significance.

Tracing the improvement in operating performance

a bit further, some pertinent data are shown in Table I, a comparison of selected freight operating statistics for the first six months of 1929 as compared with the first half of 1928. In not one detail of this table is there any recession. Gross ton-mile increased 9.1 per cent, while net ton-miles showed the greater improvement of 9.7 per cent (the favorable difference being traceable both to heavier loads per car and a decrease in the proportion of empty car-mileage to total). With this de-

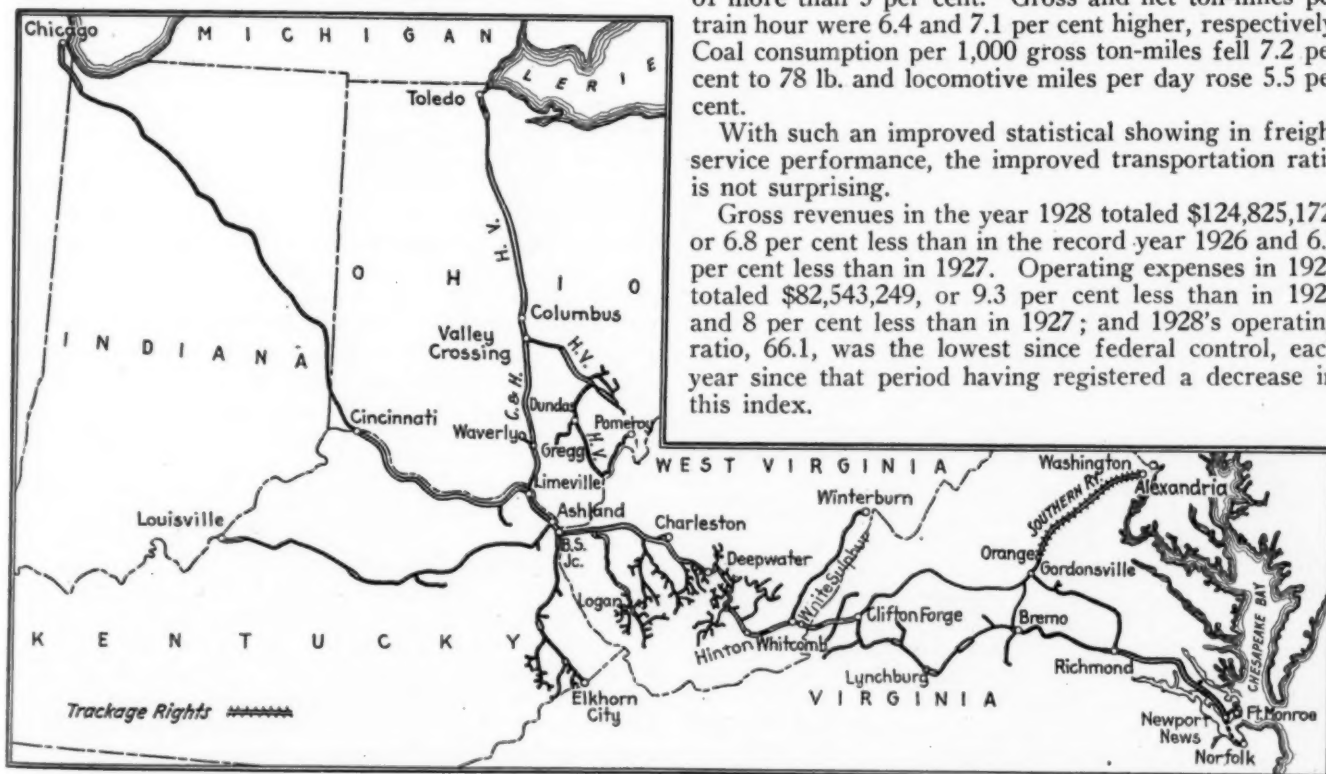
Table I—Comparison of Selected Freight Operating Statistics

	Six Months		Per cent of change	
	1929	1928	Inc.	Dec.
Mileage operated	2,732	2,723	0.3	
Gross ton-miles (thousands)	3,114,896	2,855,264	9.1	
Net ton-miles (thousands)	1,682,328	1,533,032	9.7	
Freight train-miles (thousands)	1,062	1,029	3.2	
Freight locomotive-miles (thousands)	1,184	1,148	3.1	
Freight car-miles (thousands)	68,185	62,856	8.5	
Freight train-hours	84,253	82,196	2.5	
Car-miles per day	56.8	50.7	12.0	
Net tons per loaded car	43.1	42.9	0.5	
Per cent loaded to total car-miles	57.2	56.8	0.7	
Net ton-miles per car day	1,402	1,236	13.4	
Freight cars per train	65.2	62.1	5.0	
Gross tons per train	2,933	2,774	5.7	
Net tons per train	1,584	1,489	6.4	
Train speed, miles per train hr.	12.6	12.5	0.8	
Gross ton-miles per train-hour	36,971	34,737	6.4	
Net ton-miles per train-hour	19,968	18,651	7.1	
Lb. coal per 1,000 gross ton-miles	78	84		7.2
Loco. miles per loco. day	63.2	59.9	5.5	
Per cent freight locos. unserviceable	14.8	14.8		
Per cent freight cars unserviceable	2.7	2.7		

cided increase in transportation performance, train-miles were but 3.2 per cent higher locomotive-miles only 3.1 per cent higher, and freight train-hours only 2.5 per cent more. Net ton-miles per car-day were 13.4 per cent greater. Cars and tons per train showed increases of more than 5 per cent. Gross and net ton-miles per train hour were 6.4 and 7.1 per cent higher, respectively. Coal consumption per 1,000 gross ton-miles fell 7.2 per cent to 78 lb. and locomotive miles per day rose 5.5 per cent.

With such an improved statistical showing in freight service performance, the improved transportation ratio is not surprising.

Gross revenues in the year 1928 totaled \$124,825,172, or 6.8 per cent less than in the record year 1926 and 6.2 per cent less than in 1927. Operating expenses in 1928 totaled \$82,543,249, or 9.3 per cent less than in 1928 and 8 per cent less than in 1927; and 1928's operating ratio, 66.1, was the lowest since federal control, each year since that period having registered a decrease in this index.



The Chesapeake & Ohio

Comparative revenue and traffic statistics for the years 1920-28 are shown in Table II, which also discloses the great importance of coal traffic to the prosperity of this company—representing 81 per cent of total freight tonnage in 1928. The predominance of this traffic also explains the relatively low revenue per ton-mile (0.62 cents in 1928) and the heavy average train load (2,933 gross tons in the first half of 1929.)

The prosperity of the Chesapeake & Ohio is, of course, in large part ascribable to the great development of the coal regions it serves, which began in 1923. Revenue ton-miles in 1928 were 55 per cent greater than in 1920. It would be a mistake, however, to ascribe all the improvement to a mere increase in tonnage. Rather, the Chesapeake & Ohio has prospered with this increased business because it has not hesitated to make capital expenditures and to improve its operating practices to the end that increased business should be handled at a declining operating ratio. Had these expenditures and improvements not been undertaken, the growing business could not have been so satisfactorily handled. In the five-year period from the end of

Second main track construction on 5.5 miles of Logan sub-division.

A heavy program of signal installation, including interlocking plants, remote controlled switches, take-siding signals and automatic signaling.

Construction of 11 water treating plants, raising the total on the system from 35 to 46.

Construction of two engine terminals.

Rebuilding of bridge over Ohio river at Cincinnati.

Construction of a tunnel at Greenwood, Va., and converting a tunnel at Ona, W. Va., into an open cut.

New shop facilities at Huntington, W. Va., and Russell, Ky., are expected to produce large savings in maintenance of equipment expense, while third tracking and the extension of signal facilities on the Huntington division are expected to produce large returns in reduced operating expenses. Grade reduction in connection with improvements at Cincinnati and Covington is also expected to be highly remunerative. The Chesapeake & Hocking, constructed to provide a connection with the Hocking Valley in substitution for a trackage right connection, also produced a substantial saving.

Table II—Chesapeake & Ohio, Operating Results, Selected Items—1920 to 1928

	1920	1921	1922	1923	1924	1925	1926	1927	1928
Average mileage operated.	2,519	2,545	2,549	2,553	2,556	2,615	2,646	2,678	2,724
Total operating revenues.	\$90,524,185	\$83,687,958	\$83,511,561	\$101,975,798	\$108,033,148	\$123,184,103	\$133,974,031	\$133,042,174	\$124,825,172
Total operating expenses.	79,859,097	66,603,077	66,118,030	78,889,776	82,781,703	88,981,419	90,970,788	89,733,037	82,543,249
Net operating revenues.	10,665,088	17,084,881	17,393,531	23,086,021	25,251,746	34,202,684	43,003,242	43,309,138	42,281,923
Railway tax accruals.	2,997,720	2,682,160	3,301,201	4,687,394	4,628,463	6,776,290	8,240,412	8,746,329	8,490,514
Railway operating income.	7,664,736	14,382,012	14,081,127	18,369,351	20,463,076	27,390,394	34,747,619	34,535,496	33,774,429
Equipment rents—Net Cr.	2,225,640	206,053	1,331,406	2,155,899	2,748,747	3,857,576	3,611,403	3,008,124	3,576,370
Net railway operating income.	9,473,306	13,660,926	14,410,330	19,135,356	21,892,920	30,018,071	37,011,025	36,320,830	36,323,594
Gross income.	15,031,325	14,781,677	16,888,833	21,351,404	23,779,001	31,512,836	39,415,418	38,413,155	38,956,806
Interest on funded debt.	9,957,664	9,691,402	9,995,942	11,991,208	11,263,067	11,035,252	9,696,867	9,299,242	9,100,776
Net income.	3,812,906	4,192,601	6,523,670	8,979,431	12,222,043	20,152,269	29,167,506	28,607,315	28,916,925
Preferred dividends.			204,070	816,302	816,302	815,248	322,995	99,778	67,281
Common dividends—rate.	4	2	4	4	4	4	12	9.5	10
Common dividends—amount.	\$2,511,264	\$1,255,632	\$2,511,264	\$2,591,032	\$2,619,500	\$3,035,885	\$13,635,760	\$11,160,634	\$11,795,870
Earnings per share on common.	\$6.07	\$6.68	\$9.09	\$12.33	\$16.77	\$21.18	\$24.64	\$24.09	\$24.33
Revenue ton-miles (thousands).	11,720,031	9,136,051	10,002,943	12,909,457	14,267,551	17,467,890	19,797,447	19,333,965	18,186,580
Revenue passenger miles (thousands).	384,045	331,513	304,221	334,583	312,427	280,510	264,544	248,436	208,799
Revenue per ton per mile (cents).	0.621	0.737	0.687	0.660	0.646	0.620	0.602	0.617	0.620
Tons of revenue coal carried.	28,654,792	23,756,528	28,120,081	34,860,453	41,444,713	51,718,051	55,807,518	58,631,243	53,489,955
Total revenue tons.	40,838,116	31,493,087	37,926,425	47,949,494	53,665,612	63,996,306	67,863,293	71,023,263	65,935,659
Per cent coal of total.	70.17	75.33	74.15	72.70	77.23	80.81	82.24	82.55	81.12
Transportation ratio.	42.0	37.6	35.7	33.1	30.7	28.2	27.2	26.7	26.1
Operating ratio.	88.2	79.6	79.2	77.4	76.6	72.2	67.9	67.4	66.1

* After deducting the full rate of 6½ per cent on preferred series A allowing the actual amount paid, the earnings on common stock were \$10.06.

1923 to the end of 1928 alone, investment in road increased \$26,486,764, or 12 per cent, and the investment in equipment \$28,765,673, or 29 per cent.

At the end of 1923 the company had 564 freight locomotives with an average tractive effort of 54,934 lb. At the end of 1928 the number of freight locomotives had increased to 649 and their average tractive effort to 63,220 lb. In 1923 the predominant type of freight locomotive was the Consolidation (of which there were 274, as compared with 229 Mallets). In 1928 the predominant type was the Mallet (of which there were 274, as compared with 187 Consolidations and 181 Mikados). In 1923 the company had 38,434 coal and coke cars of an average capacity of 58.7 tons. In 1928 the total had risen to 43,449 and average capacity to 59 tons.

At the end of 1923, rail of 130-lb. section was in service on but 90 miles of first main track and 100-lb. rail on only 847 miles. At the end of 1928 a total of 318 miles of first main track was equipped with 130-lb. rail and 1,130 miles with that of 100-lb. section.

The installation of additional main tracks, signals and sidings to provide for more economical handling of heavier traffic has progressed steadily.

During 1928 the following important construction projects were initiated or completed:

The Chesapeake & Ohio at the end of 1928 had a corporate surplus of \$124,487,912, equivalent to 105 per cent of capital stock then outstanding. The ratio of capital stock to total capitalization was 39 per cent. In 1928 funds available for interest on funded debt and rental of leased property were 3.9 times requirements.

In April of this year the Interstate Commerce Commission, modifying a previous order, granted permission for the company to issue \$30,000,000 of common stock to be sold to stockholders at par for the purpose of capitalizing expenditures previously made. Acquisition of control of the Pere Marquette was also authorized, and the principal executive officers of the two companies are now identical.

The proposal that the Chesapeake & Ohio become the keystone of a consolidation of railway properties controlled by the Van Sweringen interests is well-known and need not be discussed here—especially since the attitude of the Interstate Commerce Commission on consolidation generally has not as yet been disclosed. Consolidation or no consolidation, however, the position of the company is very favorable. It is keeping pace with the traffic demands arising from the growth of production in its territory, and it is handling this enlarged volume of business efficiently and profitably.

Eastern Terminal System Proposed

*New Loree plan filed with Interstate Commerce
Commission by Delaware & Hudson*

WASHINGTON, D. C.

A NEW plan for the grouping of many important eastern railroads into a North Atlantic terminal system, proposed by L. F. Loree, president of the Delaware & Hudson Company, was placed before the Interstate Commerce Commission on September 17 in a formal application filed on behalf of the D. & H. for authority, under the provisions of the transportation act, to acquire control of lines having a total mileage of 13,553 and a total investment of \$2,629,391,328. The application, which was docketed by the commission as Finance Docket No. 7835, differs basically from the so-called "Loree fifth system plan" of a few years ago, which was informally submitted to the commission by Mr. Loree while it was considering its general consolidation plan and after the "four-system plan" had been submitted.

The new plan arrives at a time when the commission is again considering the promulgation of a general railroad consolidation plan, to comply with the directions given it in the transportation act, and when it has before it also formal applications of the Baltimore & Ohio, Chesapeake & Ohio, Pittsburgh & West Virginia and Wabash, which embody various plans for the grouping of the eastern roads. As a basis for its study the commission also has before it a plan recommended

burgh & West Virginia Railway; Reading Company; Rutland Railroad; Virginian Railway; and Western Maryland Railway.

"The proposed system would have," the application says, "exclusive of trackage rights hereafter to be acquired and new construction, if any, 13,553.35 miles of line. The aggregate investment in property devoted to the public service, as measured, on December 31, 1928, by cost of road and equipment, cost of material and supplies, on hand and cash working capital, was \$2,629,391,328; the gross operating revenue of the calendar year 1928 amounted to \$605,101,332, and the net railway operating income of the same year was \$121,527,173, giving a rate of return of 4.62 per cent. Under coordinated management and operation these properties would constitute a balanced and well adjusted system, strong enough to compete on equal terms with any existing system or extension thereof or with any other new system that can be created under Section 5 of the Act.

Changes in I. C. C. Tentative Plan Proposed

"The proposed system is System 7 A of this commission's tentative plan for the consolidation of the railroads of the United States into a limited number of systems including everything there included except Pittsburgh & Shawmut and Pittsburgh, Shawmut & Northern, both of which were also assigned to System 4, Erie, of the tentative plan, and Ulster & Delaware, the last named having subsequently been assigned to New York Central, and plus Central of New Jersey; Reading, Buffalo & Susquehanna, Rutland, Pittsburgh & West Virginia, Virginian, and Western Maryland. By the tentative plan Rutland and Western Maryland were assigned to System 1, New York Central, Central of New Jersey and Reading were assigned to System 3, Baltimore & Ohio; Pittsburgh & West Virginia was assigned to System 5, Nickel Plate-Lehigh Valley and Virginian to System 8, Chesapeake & Ohio.

"The purpose of the addition of the railroads south of those assigned to System 7A is to make the proposed system a genuine and comprehensive terminal system for the entire North Atlantic seaboard and to extend it to coal fields adequate (a) to supply the people and industries of the terminal cities with fuel and (b) to provide an ample and reliable source of fuel for use in steam transportation by land and upon navigable waters. Rutland is added to make the system comprehensively cover the whole of New England. While the inclusion of Central of New Jersey and Reading is desirable in order to set up a fully efficient North Atlantic terminal system, such inclusion may be conditioned upon (a) continuance of the present arrangements under which Baltimore & Ohio is enabled to reach New York harbor and (b) upon suitable provision being made for handling from Newberry Junction, Pennsylvania, all traffic which New York Central may desire to route to New York City or vicinage via that Junction.

"About forty years ago the construction of independent belt lines of railways and separately organized

Mileage and 1928 Gross Revenues, Operating Expenses and Net Railway Operating Income of Railroads Involved in Proposed System

	Mileage	Gross Revenue	Railway Operating Expenses	Net Ry. Oper. Income
Bangor & Aroostook.....	614	7,199,222	4,950,505	1,899,190
Maine Central.....	1,122	19,301,899	14,986,283	2,704,327
Boston & Maine.....	2,109	76,624,238	57,429,323	12,802,969
Rutland.....	413	6,626,282	5,361,874	940,883
New York, New Haven & Hartford.....	2,119	137,633,053	94,148,641	29,238,404
New York, Ontario & Western.....	569	12,650,717	10,496,821	913,577
Delaware & Hudson.....	845	40,229,715	31,585,665	7,662,966
Lehigh & New England.....	217	5,392,412	3,955,210	1,211,313
Lehigh & Hudson River.....	88	2,822,846	1,868,303	522,024
Delaware, Lackawanna and Western.....	990	81,135,181	57,975,287	17,119,226
Reading.....	1,387	89,940,034	69,826,346	17,098,848
Central Railroad of New Jersey.....	635	58,002,057	42,122,160	9,385,057
Buffalo & Susquehanna.....	238	1,632,983	1,466,076	321,448
Buffalo, Rochester & Pittsburgh.....	600	16,966,504	13,848,359	2,787,637
Western Maryland.....	875	18,592,557	12,676,171	5,250,619
Pittsburgh & West Virginia.....	92	4,473,024	2,554,354	2,218,716
Virginian.....	545	18,480,118	10,103,840	7,096,053
Total.....	13,478	597,702,842	435,355,218	119,173,257

Note. Figures herein were compiled from exhibits accompanying the application but the totals do not quite agree with those discussed in its text. Tabulation nevertheless gives convenient summary of what is involved in the proposal.

by Commissioner C. R. Porter, as chairman of its consolidation committee, and Chairman Lewis has stated the opinion that the commission may be able to work out a plan by the end of the year.

The Delaware & Hudson application asks authority to acquire control by lease, by stock ownership, or otherwise of the following railroads:

Bangor & Aroostook Railroad; Boston & Maine Railroad; Buffalo & Susquehanna Railroad Corporation; Buffalo, Rochester & Pittsburgh Railway; Central Railroad of New Jersey; Delaware, Lackawanna & Western Railroad; Lehigh & Hudson River Railway; Lehigh & New England Railroad; Maine Central Railroad; New York, New Haven & Hartford Railroad; New York, Ontario & Western Railway; Pitts-

railway terminal systems, for the purpose of giving more efficient service to industries located within urban areas in the United States and affording equal access to such industries to all carriers able to connect with such belt or terminal systems, became a recognized feature of American railway practice. Such systems have rendered exceedingly valuable services and they have increased in number and importance. The proposed system would be a belt or terminal system for the whole north Atlantic seaboard. Reaching every port, from the Canadian boundary to and including Hampton Roads, it could have no incentive to favor one as compared with another; it would be able to carry the traffic of each and any of its connections, now existing or hereafter created, to any of these ports; it would afford all carriers not reaching one or more of these ports the opportunity to accept traffic therefor, and could and would carry such traffic on equal terms and without favor to one connection as against any other connection. Any railroad now or hereafter built to a connection with the proposed system would thus be able to reach any north Atlantic port. Such a system, under coordinated management, would be invaluable, at once to the people and industries of the Atlantic seaboard, to the people and industries of the great trans-Allegheny region, which raises food and provides raw and partially manufactured materials for the denser population of the seaboard, and to all railways desiring to participate in movements to or from north Atlantic ports not reached over their own rails.

"It may be contended that the New York Central and the Pennsylvania have already become immensely powerful, that they are well-rounded systems of railroads extending east and west from the north Atlantic seaboard to Chicago and the Mississippi river, with a large complement of lateral, interconnecting, branch and radial lines; and that, in a lesser degree, Baltimore and Ohio and Chesapeake and Ohio, including with the latter, to complete the picture, its recently authorized railroad affiliations and those also controlled by Alleghany Corporation and Chesapeake Corporation, are systems developed along the same lines and seemingly well constituted for the economic and other functions

which they may properly undertake to perform. Without consideration it seems to have been assumed, in the discussion of consolidation which has followed the revision of section 5 by the transportation act of 1920, that the only way to develop larger systems in the eastern region must be to develop systems as nearly as practicable like the now existing systems that have been named. Like most things, which are assumed without evidence or consideration, this assumption will admit of examination and may not be warranted. Without criticizing the constitution of any of the named systems, it is notoriously true that no one of them was either planned in advance or developed to meet conditions, either economic, military or social, that now exist. Each of the four systems named has been built up, very largely, by the consolidation of local railroads, but these consolidations have covered a period of time extending continuously from the first and second decades of railroad construction in this country and search for the reasons by which they were impelled leads inevitably to the conclusion that, to a very large extent, these consolidations were either intended to expand trade opportunities, limit competition or effected with the primary object of securing banking and promotion profits. Consolidations prompted by self-interests of these sorts have, indubitably, produced systems of high current efficiency, but they are not necessarily systems that ought now to be copied or even, if non-existent, to be reproduced. The alternative to such servile copying of tuitous consequences of past interactions of market conditions and individual and corporate errors and ambitions is a deliberately planned and well-rounded railroad system, adapted and adjusted to present conditions and future probabilities. As such the system here proposed is deemed to be capable of rendering far more useful and extensive service and as being far more in the public interest than any system which could be constituted along the ancient formula out of railroads available, or that could be made available, for the transportation necessities of the eastern territory."

The D. & H. included in its application proposals for acquisition of short lines physically connecting with any of the roads included in the system.

* * *



The "Alouette," Boston-Montreal Train of B. & M. and C. P. R., at Winchester, Mass.



On the Denver & Rio Grande Western near Minturn, Colo.

Roadmasters Discuss Problems of the Day

Standards of workmanship, safety, use of power tools, and improved personnel were subjects of live interest at convention

FIVE informative papers dealing with subjects of primary importance in track maintenance and an equal number of committee reports which covered the assigned subjects in greater detail than usual, were the chief features of the program presented at the forty-seventh annual convention of the Roadmasters' and Maintenance of Way Association. The convention was held at the Hotel Stevens, Chicago on Tuesday, Wednesday and Thursday of this week, where exceptionally favorable facilities were afforded for the presentation of an exhibit of track materials, appliances and equipment in a large hall adjoining the room in which the convention was held. Owing to the importance of Chicago as a railway center, the exhibit was visited by a much larger number of interested railway officers than at either of the last two conventions, a fact which also influenced the attendance at the convention; which totaled about five hundred fifty members and guests.

The subjects of the five papers presented at the convention were all of a timely nature. C. W. Gennet, Jr., vice-president, Sperry Rail Service Corporation, reviewed the progress that is being made in the use of the transverse fissure detector cars; H. S. Clarke, engineer, maintenance of way, Delaware & Hudson, pre-

sented a statement of the progress made by that road in the stabilizing of employment of maintenance of way forces; R. S. Belcher, manager of treating plants, Santa Fe System, discussed the care and production of ties; M. M. Backus, assistant engineer maintenance of way, Illinois Central, spoke on essentials to the economic use of labor-saving equipment, while R. H. Ford, assistant chief engineer, Chicago, Rock Island & Pacific, took a forward looking position in an address on "The New Day in Maintenance."

Admirable Report on Safety

What was considered by many as the high point in the program was the report of the Committee on the Correction of Unsafe Methods in Track Work, prepared by its chairman, G. H. Warfel, assistant to general manager of the Union Pacific. This report is probably the most complete and detailed analysis of the problem of safety in track work that was ever prepared and embraces detailed rules of safe practice for carrying out many of the operations with which a track gang is concerned in the conduct of its routine work. Under the subject of motor car operation, which is covered in a most comprehensive manner, the report advocates surprise tests, such as are employed in the

supervision of train operation. Abstracts of the portion of the report are given in following columns.

A Committee on Cross and Switch Tie Renewals, of which L. M. Denny, supervisor, Cleveland, Cincinnati, Chicago & St. Louis, was chairman, presented data showing that the consensus of American railways favors the determination of annual tie requirements from inspections by the section foreman under the guidance of the supervisor of track rather than by a special tie inspector. It also recommended a second inspection in the spring to form the basis for actual renewals. In the opinion of this committee, switch ties should be renewed piecemeal rather than in sets. Several committee reports and papers are abstracted below, others will be covered in the next issue.

The various sessions were conducted in an exceedingly businesslike manner and the program was strictly adhered to. Preliminaries at the first session were confined to an opening address by W. F. Thiehoff, general manager of the Chicago, Burlington & Quincy, and the address of President Herbert R. Clarke, general inspector of permanent way of the Burlington.

Mr. Thiehoff spoke on the qualities essential to successful leadership. "If we were all alike, if our minds generated the same thoughts," he said, "there would be no need for teachers or supervisors. But human nature is a conglomerate complex. Some require driving; some coaxing; all of us require encouragement.

"Who should be disciplined?" he asked. "First of all, ourselves. We should understand the need for self-control. If we are prone to be self-willed, stubborn, unkind, resentful, complaining, let us correct these faults. If we are ill-tempered, consider the effect it has on our own disposition and peace of mind and then multiply this by the number of employees we supervise or associate with and I am sure we will be so alarmed at the result that we will immediately make correction and by so doing, prepare ourselves better to understand when and how discipline should be administered.

"There are, and perhaps always will be, individual employees, who think discipline is personal punishment, administered by supervisory officers because of personal dislike or favoritism, so, our duty is to understand well the rules and requirements of the service; to give consideration to the experience, development and capability of the employee and his disposition to render service, and when we apply the corrective measures by administering discipline, to explain to the employee involved his violation of rules so he may understand the need for a change in his methods or practices and his disposition to serve."

In his address, President Clarke, reviewed the progress of the association during the last year, stating that 145 new names were added to the membership roll, bringing the total to 874. He took an optimistic view of the association's affairs, but pointed to some of the problems which must be kept before the membership, chief among which are those of recruiting members from a greater number of roads, of decreasing the loss of individual members through declining interest, of enlisting greater co-operation in committee work and of increasing the number of members who participate in discussions on the floor of the convention. In his opinion, the association has a distinct field of usefulness in which it has functioned well.

Following the close of the convention the roadmasters were taken by special train, furnished by the Chicago, South Shore & South Bend, to Indiana Harbor, Ind., where they were conducted through the rail mills of the Inland Steel Company.

Selection and Training of Foremen

The committee, of which G. T. Donahue, assistant division engineer of the New York Central, Rochester, N. Y., was chairman, presented a detailed study of the problem of selecting and training men for the position of track foreman. After reviewing the increasing difficulty of recruiting men capable of development into foremen, the report offered some specific suggestions which are in part as follows:

Railroads require certain specifications for machinery and material. In like manner the present standards of track maintenance and the training necessary to produce it require certain natural qualifications in the rank and file of the men from whom one is obliged to pick his prospective foremen. In order to attract men of this type a road must offer an incentive; either an opportunity for advancement from the rank of laborer, a steady position the year round or attractive wages. The track laborer's wage in the past had often not been as attractive as it might have been and we have left the other two alternatives. Along with these there are many attractive features of other than a mercenary character, among which we recommend the following:

- 1.—Create differentials in hourly rates of pay for laborers, based on length of service, at least one differential of one or two cents being paid per hour after a continuous service of six months or a year, the period to be governed by local conditions.
- 2.—Establish a good reputation in the local communities as an organization which recognizes the just claims of its laborers.
- 3.—Give systematic promotion to those qualified, proper weight being given to ability and seniority.
- 4.—Yearly employment for at least a sufficient number of men to form a nucleus of a good track organization, thereby creating an incentive for an industrious man to enter your employment. (This paragraph does not mean maintaining uniform track forces.)
- 5.—Liberal pass privileges to track laborers, foremen and their families, thereby stimulating a loyalty which is worth much, not only in dollars and cents but in morale and which costs the road practically nothing. It is surprising what pride and keen satisfaction liberal pass privileges create.
- 6.—Clean bunkhouses and good food in boarding camps.
- 7.—Up-to-date labor-saving devices and good tools kept in first-class condition.

The choosing of a man as a prospective candidate for a foreman and his development should be given just as much thought and supervision as he receives after he is appointed a foreman.

On some roads, the supervisors build up their organizations by personal observation of good men, picking and training them practically by themselves. Under present labor conditions and increased duties for supervisors, however, we believe that lack of time prevents a supervisor from doing his organization justice in this direction and some other system of selecting men is preferable. A poor system practiced consistently is better than a good system neglected or only worked when one realizes that he needs a couple of foremen.

A foreman should be made to understand that the developing of foremen is included among his duties and that its successful performance is as much to his credit as any other duty he performs. He should be made to realize that any form of jealousy is unwarranted and not worthy of him if he is a worth-while foreman.

The report also included an outline of various plans for carrying out the training of prospects for the position of foremen under such designations as apprentice, assistant foreman, leading laborer and student foreman, with the following general comments:

In any of the methods leading to the creation of a foreman, the committee recommends the following suggestions for consideration.

- 1.—Differentials in rate of pay above that of a laborer.
- 2.—Rotation among sections of different types of work, such as branch-line and yard sections, extra gangs, main-line sections, terminals and interlocking plants.
- 3.—Qualifying on flagging under different necessities.
- 4.—Training in the correct manner of making out various reports, as well as correct methods of doing various kinds of track work.
- 5.—Practicing "Safety First" rules.

When a man has apparently passed through the necessary training and is appointed a track foreman, it should be as an acting foreman. In other words, he should be told that he is

on trial and he should be encouraged to ask for information as to his work. The probation period for a newly appointed foreman has a tendency to be too short and the committee believes that it should be increased over that now used. Railroads having agreement with the Brotherhood of Maintenance of Way Employees have in some instances probation periods of from 30 to 60 days, and we suggest that longer probation periods be granted so as to determine a candidate's actual fitness more justly.

The committee recommended the following suggestions.

- 1.—Frequent joint meetings of the supervisor with his foremen and assistant foremen for the general discussion of track work.
- 2.—Inspection of the division by a committee of foremen.
- 3.—Inspection of track on various divisions by officers, grading them according to their class and publishing these marks, so that they reach each foreman. Each foreman's attention should be called to that particular phase of his work in which his mark was low, to assist him in bringing that particular branch of his work up to standard.
- 4.—Awarding of cash prizes to those foremen having the best sections in their respective classes.
- 5.—Encouraging the reading of up-to-date periodicals.

Discussion

Several speakers stressed the difficulty they have encountered in trying to induce ambitious young men to enter railway service in the maintenance department because of the hard work they must do and the time required before they can expect promotion. There was considerable difference of opinion as to the proper length of the probationary period for newly appointed foremen, several speakers advocating a longer period than 60 days, while others held that 30 days is ample for determining whether a foreman can qualify, and that if 60 or 90 days trial is granted, the track is sure to suffer at a season when it is difficult to get it back in shape before winter. Those who advocated the longer period cited cases of men who were slow to develop leadership and who had been tried as many as four or five times before they made good, and afterwards developed into first-class foremen, some of them later qualifying for higher positions.

It was the general opinion, however, that the committee's report presented a plan for the building up, on a scientific basis, of an organization which will function permanently, and that if it is followed it will eliminate the practice of relying on chance in the haphazard selection of foremen, in that every supervisory officer will have at his command men who are trained and ready to step into vacancies when they occur.

Surprise Tests as a Check on Motor Car Operation

The report of the Committee on the Detection and Correction of Unsafe Methods in Track Work, recommended surprise tests as an effective means of insuring observance of rules governing the operation of motor cars. This feature of the report is abstracted below:

Collisions result from failure to maintain a proper lookout, failure to flag or use torpedoes and fuses where the view is restricted, or failure to control the speed properly from the braking power of the moving car. Collisions of trains are due largely to the same causes. Surprise tests to ascertain whether train and engine men are complying literally with the requirements of rules, have proved to be the most effective means of preventing train collisions, and likewise the most logical for preventing collisions between track cars and trains or other cars.

Roadmasters and all other supervisors in the maintenance of way department should be required to make a stated minimum number of surprise tests and checks on track car operation monthly, covering at least the following major points:

1. Full specified flagging equipment on every car, separated in a container, instantly accessible for quick use.
2. Flagging ahead on single track (and on double track where reversing of traffic is frequent), at all points

where the view is obscured, unless a dispatcher's message or an automatic signal indication gives positive assurance that no train will be encountered.

3. Keeping the full distance back of a preceding flagman.
4. Placing cautionary torpedoes and stop signals or a flagman to protect from the rear where necessary, as in No. 2.
5. Effectiveness of lookout maintained.
6. Spacing of moving cars and speed control.

The roadmaster should make a trip each way over each section with the section gang, conferring with the foreman as to just what places on his section are or may be dangerous under any conditions, and deciding on the spot just what procedure is necessary to prevent any possibility of the car being struck—either flagging or sending a man to a point where a clear view of the track or a governing automatic signal can be obtained. It should be decided whether protection for the car is necessary while waiting, and if so, how and where it is to be placed. The place for stopping the car should be at a landing or crossing, or a landing should be built if none is available.

How the Tests Should Be Made

Having thus definitely determined just what will be required at doubtful points, it is necessary to know positively that the instructions are lived up to. This can only be done by frequent surprise tests. These take some ingenuity, patience and time, and firm determination. It means that a roadmaster must select a place and time when a gang will pass such a point, must get there unobserved, and take a position where he can see without being seen. This sounds like detective work, and that's just what it is, only the desire is to find out for sure that a man is doing right, instead of to catch him doing wrong.

As soon as the officer is satisfied that the performance under observation is right,—or wrong,—he should step out and reveal himself, and either commend or condemn the foreman on the spot. A few such incidents, talked about up and down the line, will quickly bring about uniformly good rule observance. The roadmaster must point out to all foremen that it is not any game of tag, or hide and seek. It is not a question of how "slick" the foreman is in evading detection,—it is a matter of saving life and property by 100 per cent performance.

On double track, the lookout maintained to the rear is a most important safeguard. This may be tested by remaining concealed under a bridge or at the side of the track until the motor car passes, then stepping out on the track after the car is some distance by, and giving vigorous stop signals with a red flag, hat or coat. All men on motor cars should understand that such a signal requires an immediate stop and investigation.

Some roadmasters make it a point to inquire frequently of a foreman whether a certain train carried signals, to discover if the foreman actually observed them. One instance is related of a roadmaster who noted a passenger train carrying signals which was quite unusual. Finding the second section was several hours late, he turned back his motor car and followed the first train over his district to determine how many foremen noticed the signals. He found that 6 gangs out of 17 had failed to note them. Vigorous handling of this incident was of great educational value.

The prevention of collisions between track cars is entirely a matter of a sharp lookout, maintaining the proper spacing between cars, and running slow enough where the view is obscured to be able to stop in less than half the distance that the track can be seen to be clear. These features can be surprise-checked more easily than the flagging.

How to Avoid Road Crossing Accidents

Unless he has a clear view of road approaches for an ample distance to assure his car getting across a crossing before the fastest auto could reach the crossing, the track car operator should stop his car and send a flagman out on the crossing. This flagman should indicate when the track car should move and should stop highway traffic by a vigorous flag signal if necessary. Approaching all crossings, the speed of the track car must be so controlled as to enable it to stop short of the crossing if there is a possibility of auto traffic reaching it first, or of dirt or other obstruction being on the rails.

Again, surprise checks afford the only effective means of knowing that these requirements are being observed. An excellent method is for the officer to approach the crossing in an auto as the track car appears, and see just what the men do. At almost any station an auto can be secured to make such a test, and when it is known that these tests are being made, and that discipline follows failure, the chance-taking will stop.

Discussion

No objection was raised to the suggestion of surprise tests, although none reported as having employed them

deliberately. One speaker said that he made the practice of timing section motor cars when he rode on them as he found the foremen almost invariably underestimate speed. Several of those present favored a rule requiring enginemen to give the whistle signal indicating a following section to all roadway gangs and requiring the foremen of such gangs to acknowledge it. The consensus also favored more definite rules governing the issuance of lineups for the operation of motor cars.

Detection of Transverse Fissures

By C. W. GENNET, JR.,

Vice-President, Sperry Rail Service Corporation, Chicago

A discussion of the cause of fissures has become tiresome and monotonous, and yet every one is naturally curious about this puzzling question. Any discussion of it consists of mulling over the evidence collected, first, by those who regard the cause as due to a defect inherent in the rails when they leave the mill, and, second, by those who stand by the metal but allege that the traffic over the rails is really the actuating cause for an interior rupture, or crack, which grows into a fissure. The only thing that every one apparently agrees on is that fissures develop, or enlarge in size, under continued traffic. Argument along the lines just mentioned is by no means complete, and no one can safely predict which side will finally have to assume responsibility for fissures. Personally it appears to me (as it always has) as likely that the mill is fundamentally, but quite unintentionally, to blame; for seemingly some condition must occur during the fabrication of rails that introduces certain peculiarities in various rails from which fissures later develop.

It is the greatest folly to assume that every rail of an ingot is of exactly the same character throughout, merely because

stantly decreased that it can now be virtually ignored. We have tested over 30 miles on a number of different days, and then we have run onto long stretches of the well known corrugated or wash-board rails and operations have been terribly upset.

Traffic is always a disturbing factor to the speed of testing, and as a rule from 15 to 20 per cent of the time on the road may be occupied in getting the equipment out of the way of trains, but this loss can be considerably decreased on double-track lines by co-operation from the dispatchers.

One of the most interesting and perhaps surprising incidents of the operation of the detector cars has been the fact that many other defects in addition to fissures are so easily located and recorded. We are now actually "picking up" quite as many defects of other types as we are of fissures and the value of the detector car has, therefore, been very greatly enhanced. These defects include split heads and sometimes what are probably real pipes, cracked webs, cracks at the junction of the head and web, and the so-called horizontal fissures.

It would not be right even if it were possible, to give figures showing the number of fissures and other defects that the detector cars find. Such figures in the hands of the uninitiated could do considerable damage, and naturally the confidence of the roads for whom we have done the work should be respected. Notwithstanding the circumstances, I am taking the liberty of giving some results for practically 1,000 miles of tested track on different lines with different kinds and ages of rail laid under different track conditions. On this mileage we found 116 transverse fissures, 66 horizontal fissures and 234 other defective rails. Thus, there was one transverse fissure in every 9 miles, one horizontal fissure in every 15 miles and one other bad rail in every 4 miles, or one seriously defective rail every 2.4 miles.

This naturally raises the question of how fast fissures grow. On that there are no reliable data, but we know that under ordinary conditions of traffic the growth may be faster than supposed. We have reason, from a few sporadic cases, to think that fissures may readily double in size within 60 days of normal traffic but that is purely a random statement easily subject to change. Tests are badly needed in order that a rule of thumb formula can be established which will give some idea of the probable rate of growth in terms of the number of tons of traffic.

Discussion

W. C. Barnes, expert of the A. R. E. A. Rail committee, briefly reviewed the performance of the detector car being operated by the A. R. A., stating that it has tested about 2200 miles of track to date, with an average of about one transverse or compound fissure to 10 track miles. In one month it operated over 396 track miles with no expense for maintenance and a loss of only 40 min. for adjustments. He said the reports made by the railways to the rail committee embrace about 5450 fissure failures per year, but this takes no account of the incipient failures. This raises the question as to the rapidity with which the fissures form and with it the question of the intervals at which the detector car must be operated over the same piece of track to insure that any dangerous conditions will be detected in time. This cannot now be answered accurately.

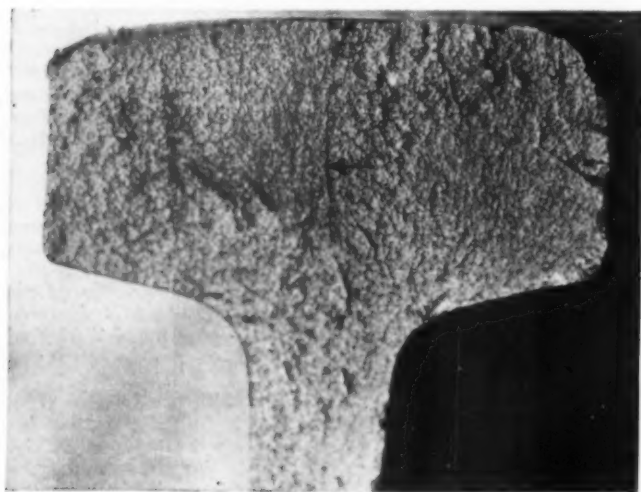
C. B. Bronson, assistant inspecting engineer, New York Central, called attention to the large amount of research now being carried on in an effort to obtain better steel for rails. Until this is realized much dependence must be placed on the detector to insure safe track. The New York Central, he said, was considering the purchase of a detector car of larger size, capable of greater speed and more flexible service.

The Stabilization of Forces

By H. S. CLARKE

Engineer Maintenance of Way, Delaware & Hudson

Maintenance work cannot be handled piecemeal; it must be organized for the season or for the year; better still, many items of maintenance work, particularly in the bridge and building department, can be organized on a five-year program. Therefore, the first step toward the stabilization of maintenance forces is to get the maintenance-of-way appropriations made



Example of a Split Head "Picked Up" by the Detector Car

of having been accepted under even the most rigid specifications for chemistry and physical tests. Two rails, perhaps originally adjacent in the same ingot, may give totally different service under traffic, and the task of finding a definite reason for that is just about as difficult as attempting to assign a cause for the difference in the twins.

Indications now point so plainly to the occasional presence in new rails of what are freely called "shattered zones," and to the rather rapid development of these minute interior cracks into fissures, that I feel disposed to repeat the earlier suggestion that the mill, or the method, is primarily responsible for the introduction of some condition into the hard steel of unsymmetrical section that causes these little cracks. Thus one twin rail may be rendered different from its brother, depending on some slight difference of treatment during manufacture.

How We Are Finding Fissures

The three cars we now operate have tested practically 5,000 miles of track. The number of miles tested per day varies widely, depending on the condition of the surface of the rail under test, the traffic conditions encountered, and the time lost for making repairs, although this latter item is being so con-

for the year, and all seasonal restrictions taken off, with the object of doing the work most economically. The appropriation should be based on the estimated earnings for the year, with due regard to the physical condition of the road.

If the actual earnings are found later to be falling below the estimated earnings, and it becomes necessary to economize, arbitrary cuts should not be made in one or two months, but the amount of the saving to be made should be determined and, instead of being required to make this saving by drastic cuts in labor or in one or two items of material, the maintenance of way department should be advised of what is expected of it and then allowed to distribute the cut over the balance of the year, in the manner in which it will least affect the program and organization.

With our uniform forces on the Delaware & Hudson, we have had, at times, to make such reductions in our maintenance expenditures, and have made them in this manner with very little disturbance to our program or organization. Every item of expense is carefully considered and cuts are made here and there sufficient to meet the required amount finally.

The full benefits of stabilized forces are not realized at once, as it takes time and hard work to develop the many necessary steps leading to it and to get all concerned working wholeheartedly for it, but once the corner is turned, the results are surprising and the benefits are far greater than is now generally realized by maintenance-of-way men. No one who has worked under this scheme would ever think of going back to the old way.

In 1924, we had been laying rail in the winter for several years and I am going to quote a paragraph from a letter that I wrote to the assistant to our general manager in charge of personnel in December, 1924.

Probably our greatest problem is with our laborers or trackmen. Trackmen require skill and knowledge of how and what to do in order to maintain track. Our greatest drawback in securing improvement in maintenance work is our difficulty in improving the quality of the men and holding them with the present rates and conditions. Our studies develop that the efficiency of the new man is very low and that it is false economy to use cheap labor with no experience and with no intention of making it a regular vocation. Both the quantity and quality of work performed by this class of labor bears out this contention.

Study of the Forces Desirable

To overcome our difficulties in the above matters, our forces were studied and changes made which we believe have made the work more desirable. Our foremen were changed from hourly rated men to a supervisory class, receiving a monthly rate of pay covering all time worked, with two weeks' vacation each year with pay and protection during illness. Today, on the Delaware & Hudson, with group insurance covering all employees, the foreman does not have the worries that he formerly had as to what would become of his family during an illness, for, in addition to the insurance protection, the company sees to it that his family is properly taken care of and a foreman seldom loses a day's pay through illness.

Assistant foremen are on the same basis as the foremen, receiving a monthly rate of pay under practically the same conditions. We create a great number of positions for assistant foremen and even on some of our smallest sections we have assistant foremen. Young men with common school education are encouraged to enter the railroad service, and likely looking trackmen are promoted to assistant foremen's positions.

For trackmen, we have an entering rate which is increased five cents an hour at the end of six months' service and from then on for five years, he receives an increase to his hourly rate each year. With the continuity of employment by the distribution of the work over the entire year, this gives the men an incentive to stay on the job and discourages them from leaving the service to secure work for a few months on highway or other short construction jobs paying a high rate and then expecting to return to the railroad at the end of such work.

Group meetings of foremen are held from time to time with the roadmasters and supervisors to afford opportunity for the discussion of standard methods. Classes for foremen are also held by supervisors, covering certain specified transportation rules, motor car rules, safety-first instructions and first-aid work, in which the foremen are required to qualify. Traveling timekeepers are employed under the supervision of the accounting department to check up and instruct foremen in the proper distribution of the time and material used.

I am not going into the details of the actual work of winter rail laying; however, I will say a little about the actual benefits secured by the Delaware & Hudson company.

The number of trackmen on the D. & H., with less than six

months' experience has decreased 65 per cent from those employed in 1926.

The labor turnover has been greatly decreased.

Our entire force before the winter work program was put in, varied from 2,400 men in the winter to 3,400 to 4,000 men in the spring and summer. In 1928 our total maximum force, disregarding 200 men employed on a construction job who were laid off in February, 1928, was 2,525 maximum and 2,465 minimum, a variation of 60 men.

In 1929, our maximum force was 2,593 men and our minimum 2,457, including 70 men on construction work, a variation of 136 men.

Our average rate of pay in 1928 was 5 per cent over 1920; our decrease in total maintenance of way payroll was \$1,228,467, or 19 per cent.

Our average rate of pay in 1928 was 6 per cent over 1921; our decrease in total maintenance of way payroll was \$708,629, or 19 per cent.

Our average rate of pay in 1928 was 15 per cent over 1922; our decrease in total maintenance of way payroll was \$720,846, or 19 per cent.

Our average rate of pay in 1928 was 13 per cent over 1923; our decrease in total maintenance of way payroll was \$257,565, or 8 per cent.

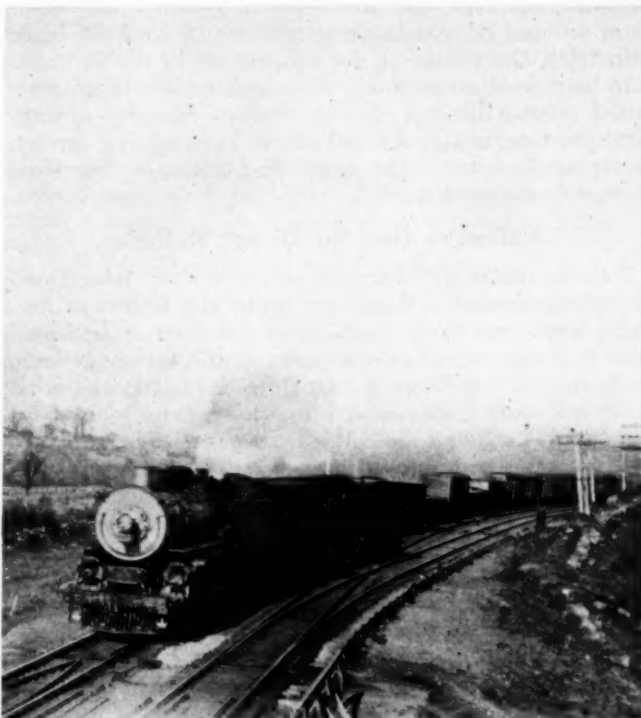
Our average rate of pay in 1928 was 13 per cent over 1924; our decrease in total maintenance of way payroll was \$553,808, or 15 per cent.

While this saving undoubtedly is not all due to the stabilization of forces, a very large percentage of it is, and many of the other items contributing to it are necessary and a part of the development of the scheme, such as improved supervision, labor saving machinery, etc. Probably the best proof of the success of the plan is that with this decrease in payroll in 1927, 1928 and 1929, we have had better track conditions and improved general maintenance conditions than ever.

While great credit is due to our division engineers, roadmasters and supervisors for the splendid manner in which they have handled this matter and made it a success, the plan could not have been at all possible if it had not been for the foresight and progressiveness of our president and management in providing the opportunity, backing and patience necessary to the development of the stabilization of maintenance forces.

THE TUMWATER CANYON section of Stevens Pass, which was occupied by the main line of the Great Northern before the completion of the Cascade Tunnel and the Winton cutoff, has been converted into a highway and was opened to public traffic on September 1. The road is 15 miles long.

* * *



New Haven Freight Train, Near New London, Conn.

Freight Rate Rebating Plan for Depressed British Industries

Roads convert saving in taxes into reduced rates under scheme which becomes effective October 1 and is now operating under anticipation plan

By Alfred W. Arthurton

British Railway Companies Association

THE British government Budget of 1928 contained a comprehensive scheme of administrative reform which may take years to effect and the reactions of which may not be fully apprehended for a generation to come. It represents an effort inspired by the highest qualities of imaginative statesmanship to lift from the shoulders of British industry a load under which it has long staggered and which has lately become almost insupportable.

Briefly the scheme is that productive industry shall be relieved of the greater part of the burden imposed upon it by a system of taxation which was designed under the Tudor sovereigns for a nation of 4,000,000 people living almost entirely by agriculture, and which is wholly unsuited to the highly industrialized society of today. In order to finance this relief from local taxes a new source of revenue is opened up by the imposition of a tax on gasoline. From October, 1929, the British government will pay the whole of the local taxes on agricultural land and buildings, 75 per cent of the taxes on all buildings and plant used for purposes of production by means of manual labor and a similar amount of the local taxes paid by the railway companies. In order, however, that this relief may afford the maximum amount of assistance to agriculture and the basic industries, the whole of the subvention to the railways is to be passed on to those industries and to be concentrated upon a limited class of traffic—namely, agricultural produce, coal, coke and patent fuel, mining timber, ironstone, iron ore, manganese and limestone for blast furnaces and steel works.

Railways Get No Direct Relief

Railway rates in Great Britain are now determined by an independent tribunal set up by the Railways Act, 1921, which has to fix them at such a level as will produce a certain standard revenue. Railway wages have risen enormously since 1914, while the burden of local taxes has more than doubled and now amounts to about 8 millions sterling (\$38,880,000) a year. The railways will get no direct relief from the "de-rating scheme" (which is the popular name for the tax relief plan), since all they receive must be passed on to certain of their customers in respect of specified commodities. It is hoped, however, that the railways will benefit indirectly from the increased prosperity of the heavy industries and directly from the cheapening of coal and other essentials of their own industry.

One of the criticisms passed upon the de-rating scheme when it was outlined by Winston Churchill, former Chancellor of the Exchequer, in his 1928 budget

speech was that a whole year and a half would elapse before the proposed relief came into operation whereas the need of industry, and particularly heavy industry, was urgent. It was in answer to these representations of urgency that Parliament decided to make an earlier start with one part of the plan for rehabilitating industry, that relating to a reduction in railway rates, and to bring it into operation on December 1, 1928, ten months before the main scheme operates.

This new arrangement, however, left the railways without any compensation, as the reductions were intended to be nothing more nor less than the results of remitted local taxation which the railways were bound to pass on to their customers. Although the freight rate reductions were hastened, it was impossible to sim-

Agricultural Selected Traffics		Rate of Rebate
Manure, street, stable or farmyard in bulk. Manures, other than street, stable or farmyard, in bulk.....	Used in Great Britain	10 per cent of transportation charges
Lime, limestone, chalk, basic slag, or slag for agricultural purposes.....		
Any other substance for use direct as manure, or any manure substance to be mixed and used as manure, when packed and so consigned.....		
Oil cake, whole, broken or ground...		
Meals or husks, for animal or poultry feeding, in cases, casks or sacks		
Foods for live stock consisting of meals, with spice, molasses or condiment		
Milling offals, named in the grain list in the Classification of Merchandise for conveyance by railway, for animal or poultry feeding		
Molasses for cattle feeding, consigned direct to farmers..		
Ensilage		
Hay		
Hay and straw chopped, in sacks		
Provender, consisting of chopped hay and straw, mixed with articles named in the grain list in the Classification of Merchandise for conveyance by railway.....		
Beetroot pulp (residue from sugar making), in bulk, for feeding live stock		
Carrots, mangel wurzel, or turnips, in bulk, for feeding live stock		
Grains, brewers' or distillers' (or draft).....		
Potatoes (except new potatoes as defined in the Classification of Merchandise for conveyance by railway)..		
Milk (including separated milk but not condensed milk), in cans, churns, or butts, or in bottles packed in cases		
Live stock		

ilarly anticipate the local taxation relief, hence the situation had to be met by a fixed grant from the government Treasury. The money required to cover the rebates as a temporary measure in anticipation of statutory relief, was put at £3,333,333 (\$16,200,000) and had to be paid by the Minister of Transport into a fund to be administered and controlled by the Railway Clearing House, a sum being earmarked for administrative expenses. The balance has been divided among the railway companies in proportion to the amount of the rebates given by them under the scheme. Should the forwardings of the specified commodities be unduly in-

creased during the 10 months so that the treasury grant is exceeded, the railways undertook to continue the concession and make good the loss from their own resources.

Traffic Affected

Under the first part of the schedule which relates to agriculture, a rebate of 10 per cent of the freight charges applies to all kinds of manures, animal fodder, as shown in the table on the preceding page.

The second schedule covers coal for export and for the use of furnaces, etc., as follows:

Coal Selected Traffics	Rate of Rebate
Export coal	Where the transportation charge is a toll—30 per cent of the toll. In all other cases—1½d. (3 cents) a ton and 25 per cent of the remainder of the transportation charges.
Coal, delivered to iron or steel works which consists wholly or mainly of blast furnaces, puddling furnaces, steel furnaces or rolling mills	

The third schedule applies to materials necessary to the mining and iron and steel industries as follows:

Other Selected Traffics	Rate of Rebate
Timber, iron or steel for propping or shoring purposes, delivered to a mine	Delivered to steel works which consists wholly or mainly of blast furnaces, puddling furnaces, steel furnaces, or rolling mills 10 per cent of transportation charges
Ores in classes 1 and 2 of the Classification of Merchandise for conveyance by railway	
Cinders containing iron	
Hammer scale	
Mill cinder or tap	
Mill scale	
Pyrites, iron in class 1 of the Classification of Merchandise for conveyance by railway	
Lime and limestone in bulk	

The commodities selected for rebates are those directly affecting basic industries which are essential to the national well-being or play a vital part in the export trade of the country. The one common factor in which all industries are directly interested is transport charges, and rates were therefore, selected as the common element in costs wherein the industries could be most easily assisted. Being commodities of heavy nature they are in general such as can be handled only by the railways and the matter of highway transport charges does not therefore arise.

It was estimated by the chancellor of the exchequer, when making his budget statement, that one-fifth, or £800,000 (\$3,888,000) of the relief accorded to the railways in respect of freight rebates would accrue to agriculture and the remaining four-fifths, £3,200,000 (\$15,550,000), to the mining and iron and steel industries. The latter industries account for nearly one-quarter of the total unemployment in the country. Freight charges form an important item in the cost of production in these industries, from the raw material to the finished product.

Coal Rate Relief Restricted

The freight relief on coal is concentrated entirely on export coal, bunker coal and coal for steel-making purposes. This has had a much more beneficial effect than if applied, as originally intended, to all coal. Export coal, for instance, which would have received 2d. (4 cents) per ton relief in freight rates now receives 7½d. (15 cents) per ton, and coal for steel making which would have received a reduction of 3d. (6 cents) per ton receives 10½d. (21 cents) per ton under the present scheme. The effect of the rate relief by this plan was actually tripled, with corresponding benefit to the industries concerned. The steel industry is the largest

user of coal in the country and, as steel and coal form the basis of so many manufactures it is clear that a reduction in the price of those materials will be of great encouragement to industry generally.

Over and above the railway rebates the heavy industries will, commencing on October 1, 1929, be relieved by the government scheme of three-quarters of their local taxes. Each finished ton of steel in this country has under existing circumstances, to bear an overhead charge of four shillings (97 cents) in respect of local taxation and three shillings (73 cents) of this will be remitted. Add to this the two shillings and sixpence (61 cents) per ton which, it has been estimated, will be saved on finished steel from the reduced freight rates on the materials used for its production, and the benefits to the steel industry are obvious. Moreover, the assistance that is extended to the coal industry, which should have the effect of increasing the total sales of coal and therefore lowering the price per ton, would again be reflected in the lowered cost of producing steel. Decreasing as well as increasing costs are cumulative. The cheapening of a basic commodity means increasing sales and increased sales mean further decreases in overhead costs.

Only one substantial objection was raised to the Railway Freight Rebates (Anticipation) Scheme and that was forthcoming from those collieries on the northeast coast of England which conveyed coal over their own private railway lines. As these obtained no benefit at all it was argued that they were being placed at an unfair disadvantage when compared with those concerns which used the common carrier railways. The private-line interests, however, did not receive the full support of the colliery owners as a whole, but after some negotiation it was agreed by the government to anticipate the effect of de-rating on the private lines as on the public railways and to pass on this benefit to the collieries concerned.

Concessions Denied Shipping Interests

On behalf of coastal vessels the Chamber of Shipping made an application for the de-rating proposals to be extended to the home-trade vessels on the grounds that being in direct competition with the railways, they were losing traffic to land carriers. This state of things, they alleged, would persist until the coming into operation of the full scheme of de-rating, by which time it was felt the competitive traffic would remain permanently with the railways. Although supported by various trade bodies, their efforts to obtain the concession were unsuccessful.

Results Already Noticeable

The benefits resulting from the Railway Freight Rebates (Anticipation) Scheme were not long in making themselves felt in the coal industry. For the first time since May, 1924, there has been a certified trading profit in the South Wales coalfields. For the three months ended April last a profit of 2.24d. (4½ cents) per ton was made, compared with a loss of 5.54d. (11 cents) per ton in the quarter ended January and a loss of 1s.4d. (26½ cents) per ton in the corresponding quarter of last year. The results in the other coal fields are also very satisfactory, and profits from 1d. (2 cents) per ton in Northumberland to 3s.2¾d. (78½ cents) in Cannock Chase have been recorded, compared with continuous losses month by month prior to the introduction of the rebates scheme. A director of the United National Collieries, Ltd., giving evidence before the

Railway Rates Advisory Committee on July 27 said, "In 1913 the coal trade was prosperous. Today, with the help of the de-rating relief, the coal-owners are just paying their way."

For the first four months of this year, as compared with the similar period in 1928, there was an increase of two million tons (ton = 2,240 lb.) in export coal. The coal carried by the railways for that period increased by 5,776,841 tons over the corresponding period last year and the receipts by some £1,100,000 (\$5,346,000).

As regards the effect on the collieries and the employment of men, no fewer than 53 pits have been reopened in South Wales alone since January 1, and some 12,000 miners previously unemployed have received work, and when those pits are in full blast there will be work for a greater number of men.

During the first six months of the operation of the scheme the amount allowed by the railway companies as freight relief amounted to slightly over £1,000,000 (\$4,866,000). This is only about one-third of the £3,333,333 (\$16,200,000) voted by Parliament and it will relieve the companies of any anxiety that they may have to bear any share of the loss sustained if the amount of the rebates exceeds the Parliamentary grant.

The scheme has worked well and, although difficulties have been encountered, its success is unquestioned. The experience that has been gained during the operation of the anticipation scheme has been useful to the Railway Rates Tribunal in considering the Railway Freight Rebates Scheme, which will come into operation on October 1 and will place the rebates system on a permanent basis, although it will of course be subject to revision at the end of each year.

Tool Foremen Hold Annual Convention

RAILWAY tool foremen gathered from all parts of the country for the seventeenth annual convention of the American Railway Tool Foremen's Association at Chicago, September 11 to 13, inclusive. The committee reports were, as usual, constructive in character, and the exhibit of shop tools, devices and equipment provided by the supply association was above the average in interest and completeness. A total of 61 companies was represented, as shown in detail on another page of this issue.

The high points of the 1929 convention were the addresses by E. B. Hall, general superintendent of motive power and machinery of the Chicago & North Western, and C. M. House, superintendent of motive power and equipment of the Chicago & Alton. Mr. Hall said that the railroads have been laboring under severe competition and that their success in meeting new problems is dependent to a considerable extent on the maintenance of equipment, in which work the tool foremen play a highly important part. He quoted the familiar expression that "a good workman is known by his tools" and said that tool foremen have a splendid opportunity to contribute to increased efficiency by familiarizing themselves with specific problems in all the various shop departments and developing better tools to meet these respective needs. He referred particularly to the necessity for modern heat-treating equipment and methods in the tool-room in order to get the most out of the high-speed tools now generally used.

Mr. House emphasized particularly the necessity not only for tool foremen to furnish the proper tools for railway shop use, but their obligation to help educate shop men in the proper use of these tools. Implying that none are in a better position than tool foremen to suggest necessary improvements in machine tools and recommend the best sizes and designs for different classes of work, Mr. House said: "Do we know when it would be profitable to replace an old machine with a new one? Do we know what per cent should be realized on the investment to warrant the purchase of a new machine? This should be of interest and has great possibilities. Your association has given valuable assistance in the selection of the proper machines, furnaces, etc., for the manufacture, repair and hardening of tools in your departments. It is essential that the tool department have the proper equipment, for you cannot make modern tools economically with obsolete machines, and no matter how well a tool is designed and made, if not properly hardened, it will fail in service. In order to harden tools properly, you must have the proper equipment."

Mr. House also made a strong appeal for "Safety First" through the use of greater care in the design and manufacture of small tools to minimize the possibility of failure and resultant accident. Mr. House closed his remarks with the statement that, "Today, the efficiency of a shop is judged by the number of years of unfailing service built into equipment at the lowest cost per mile and tool foremen, as a result of their training and experience, are a big factor in contributing to this standard of efficiency."

Election of Officers

At one of the regular sessions during the convention, the following were elected officers of the American Railway Tool Foremen's Association for the coming year: President, A. A. Ferguson, tool supervisor of the Missouri Pacific, St. Louis, Mo.; first vice-president, H. L. Taylor, supervisor of shop machinery and tools, Baltimore & Ohio, Baltimore, Md.; second vice-president, J. T. Jones, tool foreman, New York Central, Collinwood, Ohio; third vice-president, D. L. Grady, tool foreman, Atlantic Coast Line, Rocky Mountain, N. C.; secretary-treasurer, G. G. Macina, Chicago, Milwaukee, St. Paul & Pacific, Chicago. The Executive Committee consists of the following: C. A. Shaffer, general supervisor of shop machinery and tools of the Illinois Central, Chicago; J. E. Carroll, supervisor of tools, Chesapeake & Ohio, Huntington, W. Va.; W. J. Davidson, tool foreman, Atlantic Coast Line, Waycross, Ga.; L. C. Bowes, general piece work supervisor, Chicago, Rock Island & Pacific, Chicago.

* * *



The "Erie Limited" Leaving Jersey City, N. J.

General Foremen Meet at Chicago

Principal speaker advocates use of higher quality locomotive parts to extend life over more than one shopping

NOT satisfied with having extended the months and miles between shoppings of steam locomotives for general repairs, the keynote of the address made by A. R. Ayers, general manager of the New York, Chicago & St. Louis at the twenty-third annual convention of the International Railway General Foremen's Association is the further improvement of maintenance work by taking advantage of modern materials and processes to raise the quality of locomotive parts to such an extent that they need not be renewed at each general repair period. The convention was held at the Hotel Sherman, Chicago, September 17 to 20 inclusive.

Mr. Ayers' Address

Two outstanding figures indicate the progress that railroad transportation has made in recent years. Since 1918 the average miles per freight car per day has increased from 25 to 31, about 25 per cent, and at the same time the average consumption of coal per one thousand gross ton miles has fallen from 173 lb. in 1920 to 127 lb. in 1928, a decrease of about 26 per cent. Of course, a great many factors contribute to this improvement and the men charged with designing, building and maintaining locomotives and cars are contributing their full share.

In carrying out the manifold duties connected with the supervision of railroad shops you have, of course, many problems to meet, including costs, quality of work, and the training of men.

Remarkable improvement has been made in recent years in the design of locomotive and car equipment and at the same time in the smoothness and solidity of track of the average railroad. These two things, together with the steadily increasing demand for greater speed and reliability of service, have brought about a demand for better and better standards of maintenance and it seems to me that this one of your outstanding problems. In saying this I give you full credit for your part in the great improvement which has already been made. From my own experience in locomotive and car shops several years ago I know that equipment is much better designed and maintained today that it was then.

The day is past when locomotives and cars must be loosely put together in order to run successfully and the more closely and more accurately we can fit parts and still have them operate and lubricate properly, the longer they will run before developing excessive pounds or lost motion.

In the early days of heat treating by quenching and tempering considerable difficulty was encountered in connection with railroad equipment on account of the large size of parts. Processes are now being developed which seem to give promise of overcoming this difficulty and it seems to me that your association has a great field in extending the use of hardened and ground parts, and in some cases the parts could be hardened without being ground.

In working these things out we can profit greatly by the experience of automobile manufacturers and machine tool builders.

There is good reason to believe that use of better material, higher grade workmanship, and hardening and grinding where they can be used to advantage will not only produce better service but will actually lower the cost of maintenance.

Present day locomotives and cars would not be possible without the many specialties which have been developed to perform certain necessary functions. At the same time the maintenance of these specialties has become a very large portion of the maintenance of the equipment as a whole. You can be very helpful in cutting down the cost of maintaining these specialties by calling attention to the parts which wear out or fail and recommending the use of better material or different designs, etc., where you think they can be used to advantage.

I recall one locomotive accessory which is practically a necessity and in which certain rather expensive parts required renewal at each general shopping of the locomotive. With the very willing cooperation of the manufacturers, arrangements were made for these parts to be made of heat-treated material; they now run for several shoppings. There is some increased cost for the heat-treated parts, which is more than made up by the increased life.

With particular reference to locomotives, better design is rapidly bringing about a condition where the operations to be performed at certain classes of shoppings are more nearly uniform, which makes it possible for you to employ more and more the methods of routing material employed by strictly manufacturing shops.

Oftentimes the wear or failure of a single part causes you to tear down a quantity of other work which in itself is capable of much more extended service. The men in the shop know more about these conditions than anyone else and you can perform service of great value by calling attention to details of this kind that are usually easy to remedy if the conditions are known and, when taken care of, do much to reduce your costs and to simplify and make more uniform the movement of the work through your shops.

Periodic Shopping of Freight Cars

I should like to get across one message to the car men in particular. I have sometimes thought that a car foreman was his own worst enemy in turning out cars in such condition that it is only a question of a short time until someone will have to take them in on the repair track again.

I am very willing to agree that the design of cars in the past probably made such methods the only ones possible to employ to keep the cars moving at all. But times have changed, cars as built today have the trucks, underframes, draft gears and couplers substantially designed so that with proper maintenance they will run a long time with very few repairs.

It is common practice to shop locomotives on a mileage basis and to shop passenger cars on a basis of regularly assigned number of months service between shoppings. In the past this has not been practical with freight cars but the time has come when it is practical

and in my opinion, it is desirable and even necessary.

Several roads, of which the system with which I am connected is one, have adopted the policy of giving freight cars general repairs with a definite expectation of a certain number of years service before another general repair becomes necessary. This length of service varies from six to ten years according to the class of repairs.

That such a period of service between shoppings is entirely feasible was definitely proven to our satisfaction by the performance of a lot of 1,000 box cars built in 1916 and which, for a period of 10 years and in some cases even longer, required nothing more than running repairs except, of course, in a few isolated instances.

Similar to the practice of other roads we assign certain classes of cars to certain shops for general repairs and our mechanical department people readily agreed that if these cars were thoroughly overhauled there was no reason why they should not give nearly as much service as a new car before they would again need a similar overhauling.

For about a year and one-half we have proceeded on this basis and have every reason to believe that the expected results will be obtained. Record is made of the cost of labor and material for each car receiving such a general repair and the car is stencilled to show the date and place of general repair. Instructions are in effect that such cars shall not again be given general repairs prior to the expiration of their scheduled term of service without first taking up with the master car builder.

This practice, of course, requires the renewal of a small percentage of material that might give some further service. In most cases, however, such material can be used for running repairs and we feel that better condition of the car over a period of years and greater freedom from repair track movements will more than compensate for the slight additional cost of making the complete general repair.

Condition Freight Cars for Long Runs

Continuous long runs of passenger cars amounting to 2,000 miles or more have been common for many

years and it is very seldom that a passenger car needs any repairs of consequence or is required to be taken out of a train in the course of such a run. Long runs of locomotives are now becoming common.

Having in mind the continually increasing demand for faster and more reliable freight service it would be difficult to over-estimate the benefit from an operating standpoint that would result if freight cars were maintained so that they would make long runs at high speed with the same reliability and minimum amount of inspection and repairs at terminals as passenger cars. From an engineering and maintenance standpoint I can see no good reason why this condition cannot be brought about with resulting better service and at even less cost than at present, and I should like to leave that thought with you for your very serious consideration.

Other Addresses and Reports

In addition to Mr. Ayers' address there were addresses at later sessions by L. C. Thompson, manager of stores, Canadian National, and Isaiah Hale, safety superintendent, Santa Fe System. The following committee reports were also presented and discussed: Inspection and Lubrication in Relation to Long Runs; Repairing Locomotives Other than Steam; Saving by Modern Shop-Production Methods; Reducing Material Delays by Proper Programming; Draft-Gear Inspection and Maintenance, and The General Foreman's Contribution to Safety Work.

Election of Officers

The following officers were elected to serve for the coming year: President, H. B. Sunderman, Hocking Valley, Columbus, Ohio; first vice-president, A. H. Keyes, Baltimore & Ohio, Pittsburgh, Pa.; second vice-president, C. Y. Thomas, Kansas City Southern, Pittsburg, Kans.; third vice-president, Austin T. Streeper, New York, Chicago & St. Louis, Conneaut, Ohio; fourth vice president, William J. McCloskey, Illinois Central, Centralia, Ill. John H. Armstrong, Atchison, Topeka & Santa Fe, Topeka, Kans., was appointed chairman of the executive committee.

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The Pioneer Limited, Operated by the Milwaukee Between Chicago-Milwaukee and St. Paul-Minneapolis

Communications and Books

Consolidation—A Correction

NEW YORK CITY.

TO THE EDITOR:

I find that my article "The Status of Railroad Consolidation," which appeared in your publication of August 24, inadvertently reported that the Lehigh Valley, together with the Wabash, was one of the lines being desired by the Baltimore & Ohio. This, of course, was erroneous because the ownership of the Reading and the Central Railroad of New Jersey meets the requirements of the Baltimore & Ohio in northeastern Pennsylvania and northern New Jersey.

I trust you will give this correction the necessary publicity.

F. J. LISMAN.

Locomotive Performance on the Kansas City Southern

NEW YORK.

TO THE EDITOR:

The *Railway Age* of August 24, page 478, notes a freight locomotive endurance run established on the Frisco by its Mikado type locomotive No. 4113, which made a record run of 7,350 miles and produced 13,780,749 gross ton-miles during a federal government regulation month.

This performance is highly commendable, but in looking over the Kansas City Southern various locomotive performances for the month of July, 1929, I have taken some figures relating to its 2-8-8-0 Mallets. These Mallets were built by the American Locomotive Company in 1925 and have a tractive force of 122,683 lb. when operating compound and of 147,220 lb. when operating simple. The boiler pressure is 250 lb. and the driving wheels 57 in. in diameter. The locomotives are regularly assigned to continuous runs in tonnage freight service between Pittsburg, Kan., and DeQueen, Ark., a distance of about 305 miles in the Ozark mountain district where the grades will average 1.35 per cent and run as high as from 7 to 8 miles of 1.8 per cent and 26 miles of 1.35 per cent, compensated momentum.

During July of this year Mallet locomotive No. 760 made a total of 6,104 locomotive-miles and accomplished 11,427,370 gross ton-miles in 318 hrs. 58 min. Locomotive No. 765 made 5,238 locomotive-miles and accomplished 11,591,026 gross ton-miles in 339 hrs. 15 min.

The Frisco locomotive produced 1,875 gross ton-miles per locomotive-mile. You will note that the Kansas City Southern Mallet No. 760 made 1,872 and the No. 765 made 2,213 gross ton-miles per locomotive-mile. The Kansas City Southern's accomplishment represents ordinary and regular monthly performance, the locomotives being operated by three crews on the 305-mile runs between Pittsburg, Kan., and DeQueen, Ark.

JOHN E. MUHLFELD,
Consulting Engineer.

English Rather Than Esperanto Should Be Extended

READING, PA.

TO THE EDITOR:

I have read with much interest C. C. Fears' letter in the *Railway Age* of August 10, page 388, in which he comments on Esperanto, a universal language.

In the last analysis the civilized world will speak one language but it will take many years to bring this about. If Germany had won the World War there is a strong probability that a great effort, and perhaps a successful one, would have been made by that nation to establish that language, ultimately, as the world language. However, the world is very much like a human being and usually resists successfully any effort to compel it to use any particular language or follow any set of national customs as a standard.

In my opinion, the World War removed, definitely, any probability of the German language and influence becoming the standard for the rest of the world and at the same time points the way to the acceptance of English as the world language. My thought in this matter is based on the fact that the use of the English language is spreading faster than any other and I am firmly convinced that the English speaking races could never be induced to adopt Esperanto or any other specially created medium. If the writer is correct in this thought, and there are a multitude of indications that point to the correctness of the assumption, the best way to secure the early standardization of an international language is for all of the nations of the world to recognize the trend and rapid spread of the use of the English language. It would seem that the best policy would be for all the nations of the world to compel their school children to learn to speak and write English in addition to their own language. The result of such a procedure would, in a few years, make it a very easy matter for any nation not now using English exclusively to swing over to the use of that language with the least possible amount of inconvenience and with absolutely no confusion. All of this could be accomplished much more easily than to attempt to sell the Esperanto idea to all the nations of the world, including the present English speaking nations. It would furthermore have the advantage of avoiding the necessity for the many millions of English-speaking people to learn Esperanto or any other specially created international language.

R. B. ABBOTT,

Assistant General Superintendent, Reading Company.

New Books

Materials Handbook. By George S. Brady, associate editor, *American Machinist*. 428 pages, 4 in. by 7 in. Bound in leather. Published by the McGraw-Hill Book Company, Inc., 370 Seventh avenue, New York. Price \$4.

The material in this book has been gathered over a considerable period through constant contact with a wide range of authorities and manufacturers, and by correspondence with the latter, in an endeavor to meet the need for a concise encyclopedia that would give the purchasing department, the production executive, the engineers and foremen in the average shop the principal distinguishing data on such raw materials as alloy and special steels, alloy bronzes and brasses and other materials which have recently evolved themselves into a new branch of engineering. The classification of the materials in this handbook is general, the descriptions of material groups, and of individual materials being alphabetically arranged. The material groups cover abrasives; brasses and bronzes; building materials; corrosion-resistant and cupro-nickel alloys; fabrics, leathers, organic materials; finishing materials, industrial chemicals; minerals; oils and greases; steels, etc.

Proceedings of the Thirty-Sixth Annual Convention of the Air Brake Association. 344 pages, 6 in. by 8½ in. Published by the Air Brake Association, T. L. Burton, secretary, 5605 Grand Central Terminal, New York.

The complete papers and reports presented before the Air Brake Association at Chicago April 30 to May 3, inclusive, 1929, are printed in the proceedings of the thirty-sixth annual convention of the association. The papers discuss the best material for air brake and air signal piping; distributing valves, location, maintenance and piping; automatic speed control and automatic train stop equipment; slid flat wheels in passenger train service, causes and remedies; operation and maintenance of engineer's brake valves; gas-electric rail-car brakes; exclusion of dirt and moisture from passenger-car brake cylinders; maintenance of brake equipment on gas rail cars; car retarders; recommended practice, and main reservoirs. The contents of the convention proceedings of the association from 1894 to 1929 are also indexed in this volume.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian,
Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Earning Power of Railroads, Twenty-Fourth Issue, 1929, compiled and edited by Floyd W. Mundy. Introductory chapters discuss revenues and expenses, operating ratio, stock outstanding in relation to earning power, the Transportation Act 1920, valuation and other pertinent subjects. Statistical tables give statistics of earnings, mileage, capitalization, tonnage, etc. "in such form as to permit easy comparison." Notes give data on railroads' financial condition. "Price range tables [Railroad stocks and rights 1900-1929]" p. 599-625. Pub. by Jas. H. Oliphant & Co., New York City. *Apply*.

Practice and Evidence Before the Interstate Commerce Commission in Railroad Rate Cases, by Herbert C. Lust. In the body of the book the author has explained the entire technique of handling a railroad rate case. In the appendix the entire course of a rate case (Docket 17006, the Upson case) is reproduced (p. 466-571). Rules of practice before the Commission are given in the appendix also. Chapter III "Analysis of the Case" can well be a general reference for students indirectly concerned with the subject of rates as well as persons directly interested in rate cases. 597 p. Pub. by The Traffic Law Book Co., Chicago, Ill., \$11.50.

Selling Mrs. Consumer, by Mrs. Christine Frederick. Quotes 1928 statistics to the effect that of the 92-billion-dollar pay envelope of the American people, 52-billion dollars of it was spent by women for food, clothing, shelter and other services. Then discusses what Mrs. Consumer as purchasing agent will buy and won't and why. 405 p. Pub. by The Business Bourse, New York City, \$5.00.

The Transportation Factor in Commerce, by Dr. C. S. Duncan. "The transportation of property is an economic process. In the transportation of persons the economic factor may not be dominant. Each individual reserves to himself the right to travel as he pleases, to do what he thinks will give him the greatest pleasure and satisfaction. The passenger motor vehicle and the airplane, for instance, may transport persons for reasons that are wholly beyond the commercial sense of an economic method. But we are concerned here with the transportation of property." p. 2-3. Address to Institute of Politics, Williamstown, Mass. 16 p. Pub. by Association of Railway Executives, Washington, D. C. *Apply*.

Periodical Articles

Communications—Railways, by D. Y. Anderson. "... as with other countries, it has been the geography of India which has determined the layout of its railroad communications." In a special issue of the *Annals* entitled "India." *Annals of the American Academy of Political and Social Science*, September 1929, Part II, p. 59-67.

Is the O'Fallon Decision of Minor Importance? by L. D. McPherson. "The influence of the O'Fallon decision may be relegated to a minor place by the unavoidable lapse of time before the Commission can make ultimate valuation of the railroads." p. 297. *Public Utilities Fortnightly*, September 5, 1929, p. 291-297.

The Present Railroad Consolidation Impasse, by Ralph L. Dewey. "... there appears to be one serious defect in the proposed legislation—its lack of coercion." p. 279. *Public Utilities Fortnightly*, September 5, 1929, p. 269-279.

Towns Have What Cities Promise, by Thomas C. Powell. "This is not an argument in favor of a 'back to the farm' movement; it is an analysis of the advantages of a small community as a business and social center as compared with the large centers of population. It is written from the standpoint of experience and observation." p. 25. The author is president, Chicago & Eastern Illinois, *Nation's Business*, September 1929, p. 24-26, 174-176.

Looking Backward

Fifty Years Ago

A new and important phase in the Colorado railway situation is the announced decision of the Atchison, Topeka & Santa Fe to build an independent road from the terminus of its Colorado line at Pueblo north to Denver, a distance of 120 miles. The new line will run parallel to the narrow-gauge line of the Denver & Rio Grande.—*Railway Age*, September 18, 1879.

The Brotherhood of Locomotive Firemen, at its annual convention in Chicago, adopted a resolution stating that the organization would hereafter ignore strikes and settle grievances by arbitration. A committee on grievances, consisting of 12 members, was chosen, who will select arbitrators on the part of the firemen in all cases as to differences in wages between the organization and the railroads.—*Railway Age*, September 18, 1879.

Twenty-Five Years Ago

The Salt Lake cut-off of the Southern Pacific, between Ogden, Utah, and Lucin, was opened for passenger traffic on September 18.—*Railway and Engineering Review*, September 24, 1904.

The Canada Eastern, extending from Loggieville, N. B., to a point near Fredericton, a total of about 136 miles of line, has been acquired by the Intercolonial [now part of the Canadian National].—*Railway and Engineering Review*, September 24, 1904.

The Ulster & Delaware has had in service for more than a year a number of reinforced concrete ties, which despite the severity of the past winter show no signs of failure. Each tie weighs 450 lb. and cost 42 cents, exclusive of the cost of the reinforcement. No provision has been made for shimming the ties.—*Railroad Gazette*, September 23, 1904.

In an address which has attracted wide attention, the general claim agent of the Chicago & North Western recently presented statistics indicating a rate of increase in the number and amount of loss and damage claims on that road in the past seven years, which is little less than startling. The total amount paid for claims increased from \$70,068 in 1898 to \$330,611 in 1904, or 470 per cent, while the freight earnings increased only 40 per cent. The number of claims increased 400 per cent.—*Railway Age*, September 23, 1904.

Ten Years Ago

The Signal Division of the American Railroad Association held its first annual meeting at Chicago on September 17. It constituted the twenty-fourth annual meeting of its predecessor, the Railway Signal Association.—*Railway Age*, September 19, 1919.

Practical car men are decidedly of the opinion that the physical condition of freight cars generally is bad—extremely bad—and far worse than it was when the government took over control of the railroads about 21 months ago. Frank McManamy, assistant director of the Mechanical department, Division of Operation, outlined the bad order car situation in his testimony before the Senate subcommittee, which is investigating the coal situation, on September 4, when he stated that in July, 1919, the number of bad order cars reached 215,953 or 8.7 per cent.—*Railway Age*, September 19, 1919.

The Association of Railway Executives has filed with the Senate Committee on Interstate Commerce, a memorandum of suggestions for the amendment of the Cummins bill. They include the suggestion that the period of funding the railroad debt to the government be extended from five years to ten years and that the provisions which relate to the recapture of earnings be omitted. The brief also suggested that the fixing of rates should not require the Commission to await the results of valuations under the federal valuations act.—*Railway Age*, September 19, 1919.

Odds and Ends of Railroading

Train and engine crews at Clarion, Iowa, on the Chicago Great Western, are called from their slumbers by the oratorical voice of Wayne McCoy, who, in addition to being a crew caller, was valedictorian of his class.

An Operating Index

Word comes to us of the railway statistician, who was asked by the pastor of his church to check its efficiency. He cast about a long time for an index, and finally produced this one: "Brands Plucked from the Burning per Pew Hour."

Unarmed, Halts Hi-jacking of Freight

Lieutenant George Geyer of the Pennsylvania police force, recently prevented the hi-jacking of a \$17,900-load of cigarettes at Chicago. Although unarmed, Lieutenant Geyer jumped on the running board of a car that was being driven along the driveway while the shipment of cigarettes was being delivered, and arrested two men. They had three loaded guns in their possession, and turned out to have police records.

Cost of Uniforms

Two uniforms given free each year to conductors and porters who have been in service for more than 10 years have required a total expenditure on the part of the Pullman Company of \$4,114,500 during the past 34 years. In that period 56,653 uniforms were given to conductors and 118,714 to porters. This practice was inaugurated in 1894 by George M. Pullman when he authorized the issuance of uniforms to 51 conductors and 137 porters.

Young Sparrows Enjoy Tour

Four baby sparrows were treated to a big thrill and were separated from their parents for two days recently on the Southern Pacific when the company's wreck train went to clean up a derailment. The youngsters, two in a nest on either side of "the big hook," seemed to enjoy the ride, but were rather tired and hungry when the wrecker returned to Carlin, Nev., and they were happily reunited with their distracted parents.

Aviatrix Takes Train Ride

Mrs. Keith Miller, British aviatrix, has taken a ride in the locomotive of a train that has been beating her plane. The best she has been able to do with an old machine is seventy miles an hour, and often the Blue Comet, a Central of New Jersey train running to Atlantic City at 72 for one stretch, has tooted at her in scorn. At the meeting in the cab all was forgiven. Mrs. Miller found the engineer a charming gentleman and he explained the toots as only neighborly.

Pink Moire Coverlets

A recent issue of Vogue carries the following:

Comfort in the sleeping-car is added to immeasurably by a pink moire coverlet, pink crepe de Chine sheets, two pillowcases, a small pillow, crepe de Chine pyjamas, a pink moire dressing-gown and green leather mules, all in a dark, blue-leather bag.

Elizabeth Cullen, reference librarian, bureau of railway economics, who calls our attention to this, wants to know how the porters generally will like this.

The Speedy Place Family

Fred Place, senior vice president of the Buda Company, comes of an old railroad family. He once worked for the Illinois Central, while his father, Thomas W. Place, was superintendent of the Iowa division of that road for many years, and two of his brothers, A. M. Place, and J. W. Place, were engineers on the same division. It happened that there had been a number of derailments on the division owing to ex-

cessive speed and the senior Place went out to a country station one night to check up personally. He hadn't been there long when a freight train came down the hill at 60 miles an hour.

"Find out who that engineman is," said the superintendent.

The operator asked the dispatcher and finally imparted the information that it was the superintendent's oldest son, August.

Shortly afterwards another freight train zoomed by at high speed, and the big boss asked the same question.

"That's your son James," replied the operator.

"Well," commented the old man after a pause, "all I have to say is that Jim will have to go like h—, if he wants to catch up with Augie."

A Scientific Mind and a Car Window

"The chief engineer of our company, who has now passed away," related Dr. Charles Edward Skinner, assistant director of engineering of the Westinghouse Electric & Manufacturing Company, at a recent meeting of the Pacific Railway club, "did a great deal of traveling at one time and always carried in his kit a jimmy and a bunch of loaf sugar. The jimmy was used for raising the window in the sleeping car and the loaf of sugar he put under the sash, so that if it rained at night the sugar would melt and the window would come down."

A Railway Endurance Record

Endurance, refueling and distance records—of a kind—are claimed by three Athens, Ga., men, employed by the Southern. Tom Moore, engineer, Arthur Cox, conductor, and John Mann, fireman, are waiting to see which retires first after 42 years of labor on the same train. Moore estimates he has guided the train the equivalent of 80 times around the earth, Cox says he has punched a carload of tickets, and Mann insists he has shoveled enough coal to burn Rome over again. The train makes a short round trip daily between Athens and Lula, Ga.

Fireman Has Used Same Shovel for Approximately 50,000 Miles

Preservation of coal shovels is the favorite pursuit of Amos E. Mawbrey, locomotive fireman on the New York division of the Pennsylvania. Amos believes that every fireman should be interested in seeing how long he can make a shovel last, and has set a pace in this respect that will be difficult to equal or excel. He has used his shovel continuously on his engine for 47,197 miles. This shovel was furnished to Amos on April 11, 1928, and on June 10, 1929, 14 months later, he figured out that he had carried it for a distance equal to about twice the equatorial circumference of the earth. After another month his shovel mileage will exceed 50,000 miles.

Champion Commuter

The veteran who has traveled to his work in railroad cars all his life and who has piled up mileage in six figures has come to be a common figure in the news columns, and sometimes he wearies the reader with his mysterious journeys around the equator and elsewhere; but H. S. Chapman of Katonah, N. Y., is not that kind. His details seem to be based on realities. The New York Central, reporting Mr. Chapman's record, says that he has traveled on that road 39 years, and has traversed an estimated distance of 1,046,938 miles, which includes about eight miles a day on the Interborough Subway, on which he travels from the Grand Central Terminal in New York to his office in the lower part of the city. Mr. Chapman lives in Katonah, N. Y., 42 miles from New York City and he began traveling every business day on April 3, 1890. He deducts 52 Sundays, 9 holidays and 13 days of vacation every year. The interesting feature of this review is that concerning punctuality. Mr. Chapman has been late an average of only two times a year.

NEWS of the WEEK



S. H. GEORGE, adjuster of railway fire losses for the Railway Underwriters, Chicago, has been appointed assistant manager.

THE RAILWAY CLUB OF PITTSBURGH (Pa.) will hold its next meeting on Thursday evening, September 26, at Fort Pitt Hotel, Pittsburgh. Professor Louis E. Endsley will present a paper on freight car draft gear.

CHAIRMAN E. I. LEWIS of the Interstate Commerce Commission has expressed to the press an opinion that the general railroad consolidation plan which the commission by the transportation act of 1920, was directed to prepare, may be made public by January 1. The commission is now studying a plan recommended by Commissioner C. R. Porter, chairman of its consolidation committee.

THE VETERAN EMPLOYEES' ASSOCIATION of the Chicago, Milwaukee, St. Paul & Pacific held its eleventh annual convention at Seattle, Wash., on September 18 and 19. Five special trains were run to transport 1,500 veterans from the middle west to the Coast and back home. Business meetings, sight-seeing, a banquet and a boat trip to Victoria, B. C., comprised the program.

THE BALTIMORE & OHIO, in its effort to attain 100 per cent on time passenger train performance, operated 96.6 per cent of its passenger trains on time during July. A total of 17,446 train trips were made of which 16,849 trains arrived at the time specified in the time-table. Of the total 17,067 trains were run between the points specified in not more than the time allowed on the time-table. The Ohio River division operated 526 trains of which 98.9 per cent were on time.

New Officers of the Equipment Painting Section

The Equipment Painting Section of the Mechanical Division, American Railway Association, at its convention held at the Muehlbach Hotel, Kansas City, Mo., September 10-12, elected the following officers for the year 1929-1930: Chairman, Marceau Thierry, Norfolk & Western; first vice-chairman, Kemper J. Johnson, Nashville, Chattanooga & St. Louis and second vice-chairman, Edward M.

O'Brien, general foreman, Illinois Central. It was also decided to hold the next convention at Chicago.

Seven Per Cent Reckless

At five highway crossings in Maryland and on the eastern shore of Virginia, the Pennsylvania Railroad recently made a check of automobiles crossing the railroad at five crossings and found that of 5250 machines, 369 were in charge of drivers who are classed as "reckless." In many of the cases, the drivers crossed the railroad in defiance of automatic signals flashing red.

Western Railway Club Dinner

At the first fall meeting of the Western Railway Club, to be held at the Hotel Sherman, Chicago, Monday evening, September 23, the general subject of "Roller Bearings for Railway Locomotives and Cars" will be presented, the discussion being led by K. F. Nystrom, superintendent of the car department of the Chicago, Milwaukee, St. Paul & Pacific. Preceding the meeting, a dinner for members and guests of the club will be held at the grand ballroom at 6:30 p. m. daylight saving time.

Investigation of Reciprocity Buying

Representatives of the Bureau of Service of the Interstate Commerce Commission are in the field seeking information in connection with the investigation recently ordered by the commission, into the matter of the relation between the routing of traffic and railway purchases. The investigation was ordered under date of July 22 and was placed under the supervision of William P. Bartel, director of the Bureau of Service. It was also assigned to the docket of Commissioner Woodlock. Dates for hearings have not yet been determined.

Seventh A. R. A. Signal Pamphlet

The American Railway Association, Signal Section, 30 Vesey Street, New York City, has issued the seventh of its pamphlets on signaling principles and

practices; it is Chapter II; Symbols, Aspects and Indications. The body of the work fills 59 pages and the questions 18 pages additional. The chapter on aspects and indications includes cab signals, two-aspect, three-aspect and four-aspect.

These proposed chapters for a forth coming comprehensive book on principles and practices now number seven; those heretofore issued being Chapter V, batteries; Chapter VI, d. c. relays; Chapter VII, d. c. track circuits; Chapter VIII, transformers; Chapter X, a. c. relays; Chapter XXIII, highway crossing protection.

The price of Chapter II is 30 cents, or 20 cents to railroad employees.

Lackawanna Orders Sub-station Equipment

The equipment for the sub-stations through which the Lackawanna Railroad will receive current from the power-manufacturing companies for the propulsion of its electrified trains between Hoboken and Montclair, Gladstone and Dover, New Jersey, is to be made by the General Electric Company.

There will be five of these stations. Those located at Bergen Junction and Newark will receive power from the Public Service Gas & Electric Company, that at Summit from the Jersey Central Power & Light Company and those at Bernardsville and Denville from the New Jersey Power & Light Company. The equipment will include thirteen mercury-arc rectifiers and an equal number of groups of transformers. Alternating current power will be supplied by the serving companies at voltages ranging from 13,000 to 66,000-volts and it will be delivered from the sub-stations to the overhead contact system as 3000-volt direct current power. The largest of the rectifier units will have a capacity of 3000 kw. The use of rectifiers in railway electrification service, at voltages from 600 to 1500 is not uncommon, but the Lackawanna installation will be the first in America to operate at 3000-volts. The 3000 kw. units will be the largest operated at that voltage anywhere in the world. The installation is also unique in that rectifiers are used exclusively; no rotary converters or motor generator sets will be used in conjunction with them.

Motor and Hand Car Accidents

This is the subject dealt with in Circular No. 242, issued by the Committee on Education of the Safety Section, A. R. A. for attention during the month of October. For the year 1928, the number of persons killed in connection with the operation of these track cars (small four-wheel cars used by trackmen and signalmen) as reported by the Interstate Commerce Commission, was 82 and of injured, 3087. Not quite all of these were employees, but of employees killed, the statement shows: Struck by locomotives or cars, 20; non-train casualties, hand cars, two; non-train casualties, motor cars, fifty-three. This last figure is the one specially emphasized; and the number of injuries under this head was 2450. The report estimates that there were 55,000 motor cars (track cars) in operation, and the reader is reminded that most of these cars are in use on an average of only one hour a day.

The circular tabulates the principal causes of these casualties, and declares that 95 per cent of them are preventable. The use of side-load motor driven cars is being abandoned because of the frequency of derailment of this type, and motor cars which must be pushed to be started are also being displaced. Employees should not stand on the front of a car, or between cars and trailers; enforcement of this rule and of that prohibiting excessive loads will reduce the number of injuries due to falls.

The circular outlines what should be the principal features of a railroad company's code of regulations for the operation of hand, push, velocipede and motor cars. Men who operate cars should be examined carefully on the rules. Most railroads require, on double track, that these cars shall be stopped on the approach of a train on the opposite track and the men required to dismount and clear all tracks. The foreman should assign a regular seat on the car for each man, and each man should have a specific duty when removing the car. Men should be trained so that, in case of emergency, the car can be taken off the track quickly. Trailers on which men ride should not be used as truck cars unless properly designed for that purpose.

On approaching a highway crossing, the motor car should be stopped and the signal given to the automobile driver to pass over the track.

Waterway Traffic Interrupted

That the unreliability of transportation service on the Mississippi river is a real, rather than a fancied threat, is evidenced by the conditions that prevail on this stream now. At present the stage of the water is so low that it is causing frequent and serious interruptions to the schedules of the Inland Waterways Corporation, forcing embargoes and, in some cases, the abandonment of fleets of loaded barges in the river until a higher stage is reached.

On September 3, when the grain shipping season was at its peak, and 150,000 bu. of grain were awaiting ship-

ment, it was necessary for the corporation to place an embargo on all grain and other bulk freight, on both the upper and the lower Mississippi river. The barge line transported more than two million bushels of grain last year, principally at this season, so that an embargo now presents a highly serious interruption to its traffic. As a matter of fact, the tonnage forwarded from St. Paul by the Inland Waterways boats, during the month of August amounted to less than 300 tons.

The river situation has been steadily becoming more serious since early in August. For several days, the river level at St. Louis fell at the rate of 6 inches a day. The stage declined steadily from 10.3 ft. on August 5, to 5.7 ft. on August 15, and 3.0 ft. on September 3. This latter is the lowest stage since December, 1922.

The situation between St. Paul and St. Louis is particularly acute. Less than 200 yards from the terminal at St. Paul, the river was so narrowed by sandbars on September 16, that it could easily have been waded at three or four points.

In addition to the embargoes, all operations of the barge line have been seriously hampered. It has been necessary to split all tows of barges into smaller units, which, of course, increases the cost of operation practically 100 per cent, since two towboats are now required to handle the number of barges formerly handled by one towboat. The normal tows of eight barges, on the lower river, have to be split enroute into tows of two units of four barges each, to make it possible to navigate the shallower water. The longer tows are so unwieldy that they cannot be swung around the sharp bends of the constricted channel without danger of running aground.

Most of the difficulties of operation incurred by the barges are brought about by the numerous sandbars which still exist in large numbers in the Mississippi, and which become troublesome in times of low water despite the millions of dollars that have been spent by the government in attempts to remove them. These sandbars are causing frequent accidents. On August 30, for example, a steel barge which carried 800 tons of steel, consigned to Memphis, was scuttled, and sank in ten minutes, after it had rammed a snag in the river, 30 miles north of that city, with a loss estimated at \$25,000. On the same day, the towboat Natchez, belonging to the Inland Waterways Corporation, bound upstream, with a tow of four barges, ran aground near Armstrong, Ark., and was stranded for many hours. There have been many other similar mishaps of this nature.

The terminal situation of the Inland Waterways Corporation has also been unfortunate. The barge line terminal at Cairo, Ill., which has been seriously crippled for some time, has now been practically put out of business by the low water. The capacity of the terminal was greatly reduced last fall, when one of the two concrete track barges forming

the terminal sank at its moorings. This barge has never been raised and, on August 15, the remaining track barge was put out of commission by the low water, and by interference from the sunken hull. The barge line terminal at Minneapolis, a gift of the city, has been closed for some months, while one of the lower sills of the government lock, in the river between Minneapolis and St. Paul, gave way recently and operations through it have had to be suspended, thus cutting off the Minneapolis barge line terminal from the lower river.

Tool Foremen's Exhibit

Sixty-one railway supply companies were represented at the annual convention of the American Railway Tool Foremen's Association held at the Hotel Sherman, Chicago, September 11 to 13, inclusive. At the annual meeting of the supply association, the following officers were elected for the ensuing year: President, C. C. Zeigler, Greenfield Tap & Die Corporation, Greenfield, Mass., and vice-president, treasurer and acting secretary, H. W. Leighton, Harry W. Leighton Company, Chicago. The following were elected members of the Executive Committee: E. H. Lunde, Federal Machinery Sales Company, Chicago; G. F. Goble, Morton Manufacturing Company, Muskegon, Mich.; F. H. Revell, King Pneumatic Tool Company, Chicago; C. C. Zeigler, Greenfield Tap & Die Corporation, Greenfield, Mass.; H. W. Leighton, Harry W. Leighton Company, Chicago; E. E. Caswell, Union Twist Drill Company, Athol, Mass.; W. F. Betscheider, Norton Company, Worcester, Mass.; H. J. Trueblood, Arrow Tools, Inc., Chicago; V. M. Gaspar, The Borden Company, Warren, Ohio; W. R. Mau, Vanadium Alloys Steel Company, Chicago; T. E. Forbes, Ingersoll-Rand Company, Chicago.

The exhibition of tools and equipment this year was one of the largest and most representative yet provided for the Tool Foremen's convention, the supply companies, their products and representatives in attendance, being as follows:

Adjustable Tap & Tool Company, St. Louis, Mo.—Adjustable tap, N. C. Eck.
American Twist Drill & Tool Company, Detroit, Mich.—Twist drills, W. R. Scully.
Armstrong Brothers Tool Company, Chicago.—Tool holders, boring tool, lock dogs, drop-forged wrenches, stocks and dies, pipe wrenches and clamps. A. F. Arbogast.
Arrow Tools, Inc., Chicago.—Chisels, beading tools, rivet sets, backing-out punch, rivet-cutting chisel and safety retainer. N. W. Benedict and H. J. Trueblood.
Besley, Charles H., & Company, Chicago.—Taps, waterproof abrasive discs and Bakelite steel-back abrasive discs. R. E. Beimer.
Borden Company, Warren, Ohio.—Power drive, pipe-threading tools and pipe-cutting tools. V. M. Gaspar.
Brubaker, W. L., & Brothers Company, Millersburg, Pa.—Taps, reamers and dies. W. Searls and C. W. Borneman.
Buckeye Portable Tool Company, Dayton, Ohio.—Pneumatic drills, jaw grinders, standard 6-in. and 8-in. wheel grinders, buffers and sanders, screw drivers and nut setters. W. R. Gummere and H. W. Leighton.
The Buda Company, Harvey, Ill.—Self-lowering, journal, ratchet and standard speed jacks. G. A. Secor, R. M. Blackburn and F. L. Gormley.
Chicago Pneumatic Tool Company, New York City.—Pneumatic hammers, drills, accessories, couplings, etc., electric drills and reamers. H. R. Deubel, R. W. Nolan, J. L. Rowe, L. F. Duffy and F. J. Jobst.
Clark Equipment Company, Buchanan, Mich.—Drills and reamers. M. L. Hanlin, F. E. Cooper and C. O. Montague.

Clark Manufacturing Company, Chicago.—Piston parts, frame-bolt jacks and wheel pivot. H. J. Smith.

Cleveland Pneumatic Tool Company, Cleveland, Ohio.—Air drills, portable grinders, riveting hammers, chipping hammers, valve grinders, pressure-sealed air valves and air-hose couplings. H. S. Covey and C. J. Albert.

Cleveland Tool Engineering Company, Cleveland, Ohio.—Circular relief reamer grinder. C. W. Mades.

Cleveland Twist Drill Company, Chicago.—Reamers, drills, super-carbon drills and screw extractors. H. S. White and W. L. Evans.

Corby Supply Company, St. Louis, Mo.—Buckeye Twist Drill Company, twist drills and reamers; C. A. Claffin Company, push-and-turn hose couplings; Cincinnati Rivet Cutting Gun Company, rivet cutting guns; Crowe Manufacturing Company, safety saws; William H. Keller Company, pneumatic tools; N. A. Strand Company, flexible shaft equipment; Hanna Engineering Works, riveters. J. B. Corby, J. C. Campbell, William Voitein and W. J. Raining.

Covel-Hanchett Company, Big Rapids, Mich.—Literature. A. K. Hanchett.

Crucible Steel Company of America, Chicago.—Tool steels. F. Baskerville, R. D. Fletcher, J. H. Jones and C. V. Luin.

Davis Boring Tool Company, Inc., St. Louis, Mo.—Micrometer expansion car-wheel boring tools, micrometer expansion locomotive boring tools and expansion reamers and cutters. J. J. Larkin, P. S. Smith, Dick Monahan and V. A. Kennedy.

Dayton Pneumatic Tool Corporation, Dayton, Ohio.—Nail driver, rivet buster, riveting and chipping hammer, chisel blanks and hose connections. W. B. George.

Henry Diston & Sons, Inc., Philadelphia, Pa.—Files and hack saws. R. O. Lundberg.

Duff-Norton Manufacturing Company, Pittsburgh, Pa.—Air jack, empty-car jack, journal jack. E. E. Thulin and D. F. Evans.

East Moline Tool Company, Moline, Ill.—Locomotive cylinder and valve boring tools. E. Meir.

Fairmount Tool & Forging Company, Cleveland, Ohio.—Chisels, hammers, wrenches, etc. W. B. Green.

Federal Machinery Sales Company, Chicago.—Products of Geometric Tool Company, Gardner Machine Company, O. S. Walker Company, Crow Manufacturing Corporation and Cincinnati Electrical Tool Company. E. H. Lund, E. H. Hartmann, Harry Hein and George F. Shirley.

Firth Sterling Steel Company, Chicago.—Tool steels and carbide tools. E. T. Lockman and C. E. Hughes.

Foster-Johnson Reamer Company, Elkhart, Ind.—Hand expansion reamers, surface plates and special tools for air-brake work. L. G. Groessl, C. B. Witmyer and F. M. Enos.

Greene, Tweed & Company, New York.—Reversible ratchet wrench. R. M. Bullard.

Greenfield Tap & Die Corporation, Greenfield, Mass.—Taps, dies, screw plates, reamers, drills, gages and pipe tools. C. C. Zeigler and W. F. Beyer.

Independent Pneumatic Tool Company, Chicago.—New line of rotary pneumatic tools, including drills, grinders, screw drivers and nut setters; pneumatic hammers for scaling, chipping and riveting; electric drills, grinders, screw drivers and nut setters. R. S. Cooper, R. T. Scott, A. Anderson, S. T. Cruise, O. H. Dahlman, W. A. Nugent and R. G. Faverty.

Ingersoll-Rand Company of Illinois, Chicago.—Pneumatic tools. F. M. Cross, D. W. Zimmerman, R. W. Bailey and T. E. Forbes.

Joyce-Cridland Company, Dayton, Ohio.—Car and locomotive jacks and car and locomotive jack hoists. C. H. Brown and C. L. Bunnell.

Kelly Machinery Company, Chicago.—Hose couplings, files, hack-saw blades, steel tools and metal-cutting hand saws. J. T. Kelly.

King Pneumatic Tool Company, Chicago.—Pneumatic tools. D. Butler and F. N. Revell.

Latrobe Tool Company, Latrobe, Pa.—High speed twist drills, special tools and cut and ground thread taps; carbon taps, dies, die stocks, tap wrenches, etc. G. A. Moore, J. A. Dilger, G. A. Deichman and John Dowding.

Lovejoy Tool Works, Chicago.—Roller tube expanders, sectional tube expanders, flue cutter, flue-hole cutter, beading tools, staybolt headers, staybolt chucks, rivet-set clips, setting tools, sleeves, backing-out punches, rivet-set recapping tools and flexible couplings. W. H. Dangel and Tom Brown.

MacLean-Fogg Lock Nut Company, Chicago.—Lock nuts, speed nuts and unitary nuts. J. A. MacLean, J. W. Fogg and W. G. Wilcoxson.

Mall Tool Company, Chicago.—Electric flexible-shaft grinding and polishing machines. J. N. Gallagher.

Manning, Maxwell & Moore, Inc., Chicago.—Sheldon tools, pneumatic grinders and air brake reclamation tools. A. J. Coti, R. S. Dean and F. W. Blake.

Manufacturers' Equipment Company, Chicago.—Air-operated chucks, cylinder and valves, and collapsible taps. W. A. Buswinka and C. George.

Morton Manufacturing Company, Muskegon, Mich.—Photographs of draw-cut shapers and key seats. G. F. Goble.

National Twist Drill & Tool Company, Chicago.—Drills, cutters, reamers and counterbores. A. J. V. Kinter, R. Thompson and E. J. Chamberlain.

Norton Company, Worcester, Mass.—Grinding wheels. W. F. Bretschneider and E. C. Hughes. H. K. Porter, Inc., Everett, Mass.—Bolt clipper, nut splitters, chain cutters, angular cutters and end clippers. P. H. Newth.

Pratt & Whitney Company, Hartford, Conn.—Staybolt taps, mud plug taps, crown bolt taps, special adjustable length high-speed staybolt taps and reamers, locomotive taper reamers and helical milling cutters. E. E. Cullison, F. A. Armstrong, Homer L. Johnston, R. E. Laffler, V. Feizman and E. E. White.

Railway Mechanical Engineer, Chicago.—Magazine and books. E. L. Woodward, H. C. McCandless and R. E. Beauchamp.

Schauer Machine Company, Cincinnati, Ohio.—Portable electric tools. L. L. Schauer and H. W. Leighton.

Scully-Jones & Company, Chicago.—Counterbores, end mills, floating holders, cutters, tap chucks, drill chucks, quick-change chucks, adjustable and solid spacing collars, adjustable shell-blade reamer, plain sleeves, lathe centers, screw machine collets and cutter chucks. J. A. Gallaher and H. W. Winzer.

Sellstrom Manufacturing Company, Chicago.—Welding helmets, hand shields and goggles; grinding and chipping goggles. A. F. Strand and W. R. Jansberg.

Simonds Saw & Steel Company, Chicago.—Files, hack saws, tool bits and metal saws. F. J. Campbell, P. S. Larson, F. Blum and C. A. Fee.

Standard Boring Tool Company, St. Louis, Mo.—Car-wheel boring bars, automatic boring bars, special boring bar and cutter grinder. H. J. Nettles.

Standard Tool Company, Cleveland, Ohio.—Twist drills, reamers, taps, milling cutters and drill chucks. J. H. Brinker and R. B. Nuckols.

Starrett Company, L. S., Athol, Mass.—Machinists' tools, hack-saw blades and vises. H. Gielow and R. Beardsley.

Sterling Products Company, Chicago.—Taft-Peirce Company, magnetic chucks and gages; Spartan hack-saw blades and Husky soft-tip hammers. W. C. Teare, W. E. Rogers, C. V. Hemmingway and R. H. Schmidt.

Stevens-Walden-Worcester, Inc., Worcester, Mass.—Socket wrenches for production and general fields and socket-wrench sets. H. B. Proudfoot.

Union Trust Drill Company, Athol, Mass.—Drills, cutters, reamers, taps and drills. E. E. Caswell, H. H. Knopke and W. T. Miller.

Vanadium Alloys Steel Company, Chicago, and Colonial Steel Company, Chicago.—Tool steels. W. R. Man and W. Earl Thurber.

Wedge-Lock Tool Company, Chicago.—Tool holders. A. W. Swanson and H. W. Nelson.

Whitman & Barnes, Inc., Detroit, Mich.—Twist drills, reamers, cutters and end mills. M. J. Kearns and A. E. Guldthwaite.

Whitney Metal Tool Company, Rockford, Ill.—Hand-lever ball-bearing and roller-bearing punches and shears, angle-iron-working machinery. A. J. Henseler, William Meyers and John Jensen.

The Track Supply Exhibit

Sixty-seven firms presented displays at the exhibit of the Track Supply Association held in the Hotel Stevens on September 17 to 18 in conjunction with the convention of the Roadmasters' and Maintenance of Way Association. Owing to the facilities available for the delivery of heavy and bulky units to the exhibit hall, the exhibitors displayed more than the usual proportion of full size devices, rather than models or parts. The fact that the exhibit was held in so important a railway center as Chicago resulted in a larger attendance than usual.

The officers of the Track Supply Association, who were responsible for the preparation and conduct of this exhibit, were: President, F. E. McAllister, president and general manager, Kalamazoo Railway Supply Company, Kalamazoo, Mich.; vice-president, L. P. Shanahan, American Steel & Wire Company, Chicago; secretary-treasurer, L. C. Ryan, Oxweld Railroad Service Company, Chicago; directors, Wallace W. Glosser, Pacific coast manager, electric dept., Hubbard & Co., Oakland, Cal.; D. J. Higgins, American Valve & Meter Company, Chicago; L. S. Walker, eastern manager, P.

& M. Company, New York; George T. Willard, Railway Supply Company, Chicago; advisory directors, Elmer T. Howson, western editor, *Railway Age*, Chicago; R. A. Van Houten, vice-president, Sellers Manufacturing Company, Chicago.

Following is a list of the exhibitors, with the devices and materials shown and the names of the representatives present:

EXHIBITING MEMBERS

American Chain Company, Inc. (Reading Specialties Division), Bridgeport, Conn.; guard rail clamps, one-piece guard rails, rail benders and compromise joints; J. J. O'Connell, A. H. Weston and W. I. Clock.

American Fork & Hoe Company, Cleveland, Ohio; rail anchors, tapered rail joint shims, safety rail fork, ballast forks, rakes, scuffle hoes and broom rakes; A. F. Fifield, S. L. Henderson, J. T. Reagan, E. Keough, F. C. Stowell, J. Christie, R. C. Violett, J. J. Nolan, J. H. Dooling, C. E. Irwin and F. J. Reagan.

American Hoist & Derrick Company, St. Paul, Minn.; illustrations and photographs of locomotive cranes; Ward B. Maurer, Helen Hoeller, A. Harvey, A. Crane, J. L. Hickey and D. L. O'Brien.

American Steel & Wire Company, Chicago; fencing, fence posts, signal wire, bonds, wire rope, nails, concrete reinforcement and snow-fence posts; T. Haskell, A. W. Froude, C. A. Cochran, L. P. Shanahan, E. E. Aldous, W. Floto, C. S. Knight and C. F. Wiley.

American Valve & Meter Company, Cincinnati, Ohio; wheel flange and rail lubricators, switch stand and rail joint clamp; J. T. McGarry, J. W. McGarry and D. J. Higgins.

Bethlehem Steel Company, Bethlehem, Pa.; rail anchors, switch stands, hook-flange guard rail, gage rods, braced flangeway guard and track bolts; N. E. Salsich, R. P. Deghene, C. Cecil, J. L. Tygart, G. L. Moore, G. Oyer, G. Riddle and C. Y. Phillips.

Boss Bolt & Nut Company, Chicago; lock nuts; R. J. Shanahan, H. E. Burns, J. P. Crowley and George Hanley.

Buda Company, Harvey, Ill.; motor cars, jacks, track liners and rail benders; R. B. Fisher, H. M. Sloan, R. M. Blackburn, J. T. Jung, E. H. Walker, J. J. Gard, O. H. Brauer, G. A. Socor, E. L. Kastler and S. P. Reid.

Philip Carey Company, The, Cincinnati, Ohio; crossing materials and waterproofing materials; E. J. Van Landeghem, V. R. Muth and A. A. Chenoweth.

Chicago Steel Foundry Company, Chicago; track liner; David Evans, C. M. Evans, H. J. Georgan and W. J. Chapin.

Chipman Chemical Engineering Company, Bound Brook, N. J.; skid type weed sprayer, plans of other types of weed spraying equipment, and dry chemical weed killer; E. C. McClintic, A. F. DeVault and J. T. Darby.

Creepcheck Company, Inc., New York; rail anchors; T. D. Crowley, N. A. Howell and V. L. Walker.

Crerar, Adams & Co., Chicago; tool handles, snow brooms, track drills, rail saws, bonding drills, shovels, lawn mowers and track liners; Russell Wallace, E. C. Poehler, R. M. Bullard, W. L. Riedell, G. D. Bassett and J. M. Temple.

Cullen-Friedstedt Company, Chicago; motion picture of rail and locomotive cranes in operation; F. P. Cullen, William C. Bamber, E. V. Cullen, R. W. Payne, G. H. Pengelase, F. J. Reagan, C. J. Bronez and K. J. Beller.

Dilworth, Porter & Co., Inc. (Division of Witherow Steel Corporation), Pittsburgh, Pa.; tie plates, special die rolled sections, guard rail fastenings and track spikes; W. T. O'Neill and Thomas Maney.

Duff-Norton Manufacturing Company, Pittsburgh, Pa.; track jacks, automatic lowering jacks and tie spacers; E. E. Thulin, C. N. Thulin, W. G. Robb and Albert Roberts.

Edison, Thomas A., Inc., Bloomfield, N. J.; electric-light switch lamp, primary and storage battery cells and parts, night box for motor cars and small hand lantern; F. S. Stallknecht, C. R. Heron and P. A. Garrity.

Electric Tamper & Equipment Company, Chicago; rock type tie tamper and gravel or light-ballast tie tamper; C. Jackson, V. G. Cartier, M. S. Westlund and H. W. Cutshall.

Fairbanks, Morse & Co., Chicago; motor cars; B. S. Spaulding, F. M. Conditt, D. K. Lee, J. L. Jones, F. J. Lee, E. C. Golladay, P. H. Gilleland, H. L. Hilleary, E. P. Chase, C. H. Wilson, H. J. Smith and G. W. Lewis.

Fairmont Railway Motors, Inc., Fairmont, Minn.; Fairmont and Mudge motor cars, cutaway model of motor car engine, wheel axle-bearing assembly and model of trailer frame; Albert C. Force, W. F. Kasper, Robert D. Sinclair, K. K. Cavins, A. R. Fletcher, W. D. Brooks, V. Pagett, C. H. Johnson, C. P. Benning and C. E. Green.

Gardner-Denver Company, Denver, Colo.; power tie tamper, portable compressor and tie tamper, concrete breaker, spader and rock drills; Robert P. Leonard, R. J. Watson, Lawrence Loewe and T. H. Driscoll.

Hayes Track Appliance Company, Richmond, Ind.; models of derail, bumping posts and wheel stops; A. W. Boocroom, E. L. Ruby, Herbert J. Mayer, E. W. Brown, Oran Perry and S. W. Hayes.

Hayward Company, The, New York; clamshell buckets; H. C. Ryder, C. S. Sergeant and R. W. Hawkins.

Hubbard & Co., Pittsburgh, Pa.; shovels, track tools and nut locks; J. S. Wincrantz, W. H. Remmel, S. F. Remmel and C. Konold.

Hultgren, Anderson & Mikkelsen, Warwick, N. D.; one-man tie puller; J. H. Mikkelsen, Emil Hultgren and Charles Anderson.

Indianapolis Switch & Frog Company, Springfield, Ohio; paver plates for grade crossings; E. C. Price.

Industrial Brownhoist Corporation, Cleveland, Ohio; photographs of ballast cleaning machine, locomotive crane and wrecking crane equipment; G. F. Climo, Jr., C. H. White and R. P. Williamson.

Ingersoll-Rand Company, New York; pneumatic tie tamper, rail drill, nutting machine, concrete breaker, spike puller, spike driver and scaling tool; W. H. Armstrong, G. W. Morrow, F. J. Ursem, T. H. Wiegand, G. E. Bridge, L. A. Luther and M. J. Rotroff.

Jordan Company, O. F., East Chicago, Ind.; moving pictures of spreader and track oiler; A. L. Greenbaum, H. W. Protzeller and J. H. Mulholland.

K & W Equipment Company, Chicago; photographs of rail laying crane; A. Verne Jackson and G. T. Burrell.

Kalamazoo Railway Supply Company, Kalamazoo, Mich.; motor cars, supervisor's track gage and level; F. E. McAllister, R. E. Keller and L. W. Bates.

Keystone Grinder & Manufacturing Company, Pittsburgh, Pa.; hand and power-driven tool grinders; L. J. Cooney and S. S. Newman.

Lundie Engineering Corporation, New York; tie plates; L. B. Armstrong, George W. Nibbe, Eugene Brandeis and James C. Barr.

Maintenance Equipment Company, Chicago; switch point protector, rail and flange lubricator, model of friction car stop, literature on hand and power rail layers, power track ballaster, flange and rail lubricator and fence posts; A. L. Arnold, J. A. Roche, H. C. Holloway, E. Overmier and Clifford Hogan.

Mechanical Manufacturing Company, Chicago; bumping posts; H. E. Johnson and T. L. Zapf.

Morrison Railway Supply Corporation, Chicago; frog and switch points; C. J. Diver, F. C. Cullen, E. W. Smith, Harry Mersey, R. L. Morrison, M. B. Morrison and H. L. Morrison.

National Carbide Sales Corporation, New York; flood lights and carbide; R. C. Holcomb, E. C. Ackerman and F. E. Mull.

National Lock Washer Company, Newark, N. J.; spring washers; G. LaRue Masters, W. R. Hillary, R. L. Cairncross, A. T. Hyatt and W. E. Bugbee.

Nordberg Manufacturing Company, Milwaukee, Wis.; adding machine and power jack, and motion pictures of track shifter and raiser and full revolving track crane; W. W. Fitzpatrick, Victor F. Larson, H. H. Talboys, A. C. Harrison, E. R. Mason and Gus Geer.

Northwestern Motor Company, Eau Claire, Wis.; heavy-duty motor car; A. H. Nelson, Otis B. Duncan, Allan Datesman and G. H. Goodell.

Oxweld Railroad Service Company, Chicago; welding and cutting apparatus; L. C. Ryan, W. F. Kolmehl, J. E. Winslow, F. J. Duffie, W. E. Campbell, F. J. Lurquin, D. H. Pittman, L. A. Woodward, C. A. Bloom, M. C. Beymer, W. Leighton, E. S. Richardson, H. W. Schulze, J. G. Tawse, J. J. Saclens, F. C. Hasse, E. Cordeau, A. N. Lucas, W. A. Hogan, W. Jones, J. D. Dunbar, R. J. Nenneman and G. M. Crownover.

P. & M. Company, Chicago; anti-rail creepers and bond-wire protectors; L. E. Borst, D. T. Hallberg, G. E. Johnson, J. E. Mahoney, C. E. Webster, L. S. Walker, T. J. Byrne, S. M. Clancey, E. H. Reaves, C. H. Norwood, Jr., W. A. Maxwell, W. G. Cunningham and P. H. Hamilton.

Pettibone Mulliken Company, Chicago; switch stands, mechanical switchman and manganese guard rails; G. J. Slibeck, A. W. Swartz and C. A. Johnson.

Pocket List of Railroad Officials, New York; copies of publication; B. J. Wilson.

Positive Rail Anchor Company, Chicago; girder type guard rail, rail anchors, and guard rail plates and braces; A. H. Told and L. C. Ferguson.

Q. & C. Company, New York; guard rail clamp, compromise joint, switch point guard, flangeway guards, derails, one piece guard rail and foot guards; J. L. Terry, L. Thomas and L. E. Hassman.

Rail Joint Company, New York; insulated joints, standard joints, compromise joints, head-free joints, reinforced joints; Alexander Chapman, D. L. Braine, H. C. Hickey, C. B. Griffin, J. N. Meade, Charles Jenkinson, E. B. Bishop, W. E. Cadd, Milton Markley, E. A. Condit, Jr., V. C. Armstrong, Thomas Ryan and G. H. Larson.

Railway Maintenance Corporation, Pittsburgh, Pa.; flange oiler, pictures of shoulder mole and six-foot ballast mole; J. B. McWilliams and J. F. Casey, Jr.

Railway Purchases & Stores, Chicago; copies of publication; Edward Wray, K. F. Sheeran, H. B. Kirkland and J. P. Murphy.

Railroad Supply Company, Chicago; tie plates; George T. Willard, John Hensel, E. H. Bell, R. E. Bell, H. M. Buck, W. S. Boyce and R. B. Archibald.

Ramapo-Ajax Corporation, Hillburn, N. Y.; automatic switch stand, double-shoulder switch plate, switch clip, manganese flange switch guard, adjustable switch brace, guard rail clamp, forged braces, rail expander and gearless switch stand, gage rods, double-action oil dash pot, manganese articulated crossing and switch lock; T. A. Akers, W. Bender, G. M. Cooper, J. E. Davidson, D. Fairback, D. F. Hilton, P. Hoffman, J. V. Houston, John Hutchins, G. A. Carlson, R. W. Payne, J. B. Strong, J. V. Cowling, W. A. Peddie, H. W. Renick, W. J. Fairback and W. Perdue.

Reade Manufacturing Company, Jersey City, N. J.; moving picture showing application of chemical weed killer and miniature of spray equipment; R. W. Pritchard, B. S. Barnes and D. M. DeWitt.

Reliance Manufacturing Company, Massillon, Ohio; spring washers; Robert Shireman, H. R. Hanna, H. J. McGinn, E. D. Cowlin, H. P. McCormick, E. C. Gross and E. R. Howell.

Sellers Manufacturing Company, Chicago; wrought iron tie plates and wrought iron guard-rail tie plates; R. A. Van Houten, George M. Hogan and R. J. Platt.

Simmons-Boardman Publishing Company, New York; copies of Railway Engineering and Maintenance and Railway Age; Elmer T. Howson, F. C. Koch, J. M. Rutherford, W. S. Lacher, G. E. Boyd, H. A. Morrison, W. N. Yaden, H. E. McCandless and J. P. O'Hern.

Sinning Track Liner Company, Ramsey, Ill.; track liners and joint adjuster; F. R. Sinning, R. B. Hill, F. J. Reagan and Stanley H. Smith. Skelton Shovel Company, Dunkirk, N. Y.; track shovels, spades and scoops; E. W. McCarty, H. C. Branahl and C. A. Trigg.

Standard Oil Company of Indiana, Chicago; asphalt and road oils, model of highway crossing, graphic chart of refining processes and literature;

F. P. Keane, E. F. Tegtmeyer, F. G. Bowman and H. G. Van Velin.

Syntron Company, The, Pittsburgh, Pa.; electric tie tampers, portable electric rail drills, spike drivers, arc welders, electric nut tightener, portable saw, and scaling and chipping hammer; E. D. Jackson, D. G. Black and N. J. Ockereider.

Templeton, Kenly & Co., Ltd., Chicago; rail puller and expander, track jacks, bridge jacks, emergency jacks, screw jacks, pipe pushing jack and tie spacing shoes; George Mayer, C. A. Crane and W. B. Templeton.

Union Switch & Signal Company, Swissvale, Pa.; style T-10 hand operated switch mechanism; J. J. Cozzens.

United States Graphite Company, Saginaw, Mich.; graphite curve grease; O. R. Miller and N. B. McRee.

Verona Tool Works, Pittsburgh, Pa.; levels, gages, track tools, rail joint springs and rail anchors; A. C. Laessig, W. F. Schleiter, P. L. Laughlin and H. L. Paulson.

Warren Tool & Forge Company, Warren, Ohio; adzes, picks, spike mauls, sledges, hammers, track chisels, wrenches, gages and levels; Howard Mull, E. L. Ruby, J. A. Martin, R. E. Bell and J. F. Leonard.

Western Wheeled Scraper Company, Aurora, Ill.; working model of dump car and moving pictures and photographs; Jay Huber and Jesse Mossgrove.

Woodings Forge & Tool Company, Verona, Pa.; track tools, rail anchors and reformed angle bars; R. J. McComb, C. L. Woodings, Russell Wallace, E. C. Poehler, W. M. Westerman and B. B. Shaw.

Woolery Machine Company, Minneapolis, Minn.; tie scoring machine, motor car engine and photograph of weed burner, rail joint oiler, track bolt tightener and rail layer attachment; H. E. Woolery, C. E. Berg and Garrit Ye.

NON-EXHIBITING MEMBERS

Air Reduction Sales Company, New York. Balkwill Manganese Crossing Company, Cleveland, Ohio.

Chicago Pneumatic Tool Company, New York. National Malleable & Steel Castings Company, Cleveland, Ohio.

St. Louis Frog & Switch Company, St. Louis, Mo.

Wm. Wharton, Jr., & Co., Inc., Easton, Pa.

Foreign Railways

Chair Cars for Cuba

The United States Department of Commerce reports that the United Railways of Havana have placed in service the first chair cars to be used in Cuba. The furniture of these cars is of the porch type wicker chair and is set along the sides of the car as in club cars on American railways.

Ceylon Railway Issues Platform Tickets

The Ceylon Government Railway has inaugurated a system of issuing platform tickets to the non-traveling public, who go to the station to meet arriving or departing trains, according to recent reports to the United States Department of Commerce. These tickets are vended by a slot machine at a cost of five Ceylon cents each. The report states that the practice has proved a source of considerable revenue to the railway.

Commutation Travel in Germany

The German State Railways have recently adapted their suburban train schedules to accommodate commutation travel, according to recent reports made public by the United States Department of Commerce. This class of passenger traffic comprised 43.7 per cent of the total passengers carried by the German railways in 1927.

Reduced fares for commuters are granted on monthly tickets, student's monthly tickets and on workmen's week-

ly and round-trip tickets. Of the 1,900,000 passengers carried in 1927, 831,752,557 utilized one of the commutation plans.

New Lines in Western Australia

The mining industry in western Australia is to be served by new railway lines on which the government expects to spend £1,000,000 (\$4,870,000), according to recent reports to the United States Department of Commerce. The most important of the proposed lines will extend from Meekatharra to Wiluna. This will cost £400,000. A second 81-mile line to cost £100,000 will be projected from Meekatharra to open up the manganese deposits at Horseshoe.

Survey of Portuguese Railways

The Portuguese minister of commerce has recently prepared a decree embracing a comprehensive study of the railway system in that country, according to a recent report to the United States Department of Commerce. The study contains several chapters dealing with the classification of railway lines, funds for the construction of new lines, concessions, privileges, granted or to be granted to concessionaires, and corresponding obligations, transfers or concessions, their redemption and expiration.

For the purpose of receiving comments or suggestions on the document, the minister of commerce has published it in the newspapers before submitting it to the council of ministers.

New African Railway Bridge

The official opening, on August 31, of the Alfred Beit Memorial Bridge, connecting the Transvaal (Union of South Africa) with Southern Rhodesia across the Limpopo river, marked the first step in the building of another important African railway link. About 100 miles of new construction, now under consideration, are needed to connect the present bridgehead with the Rhodesian Railways. When this is completed, that territory will have direct rail lines to Johannesburg and to the coast at Lourenco Marques and Delagoa bay.

The bridge is 1,557 feet long, 32 feet wide, and 72 feet high. It consists of fourteen 111-foot spans, and carries one track of 3 ft. 6 in. gauge and a roadway 16 feet wide. The cost was £125,000, or more than \$600,000.

New Locomotive Facilities for L. & N. E.

The London & North Eastern of Great Britain, according to reports to the United States Department of Commerce, plans the construction of new locomotive facilities at King's Cross, England. The report states that 178 locomotives are now assigned to the King's Cross yards and a new layout is planned there that these may be serviced in a more satisfactory manner.

Freight car repair work now being done at this yard will be transferred to the existing car repair shops at Highgate and the King's Cross car shop will be converted into a roundhouse. New ash-pits will be installed together with a coal-ing plant of 500 tons capacity. The present hot water plant will be enlarged so that all locomotives may be washed out with hot water, while the 52-ft. turn table will be replaced by one of 70 ft., capable of handling Pacific type locomotives. Modern sand-drying facilities are also included in the plan.

Nigerian Railways

The annual report of the Nigerian Railways for the year ending March 31, 1929, showed a net profit of £928,969, or \$4,514,789. This compares favorably with the results of the previous year, when the net amounted to £925,505, or \$4,497,954. The operating ratio was 63.25, or 1.25% higher than in 1927-28.

The total capital investment in 1929 was £18,460,147, an average of £11,559 (\$56,177) for each of the 1,625 miles of line. The percentage of net profit to capital was 5.03.

The total number of passengers carried during the past year was 3,161,633, which represents an increase of 330,668, and sets a new high record. The total freight traffic handled was 958,414 tons, a figure slightly below the 1927-28 volume. The average train load and the average haul per ton both showed increases, while train mileage increased 12.6% and engine mileage 11.4%.

The motor transport division of the Nigerian Railway administration also reported a profit for the year, with revenues

of £24,556 (\$119,342), expenses of £22,867 (\$111,134), and a net profit, after all charges, of £1,031 (\$5,011).

Western Australian Government Railways

A deficit of £178,699, or \$868,477, after charges, was reported by the Western Australian Government Railways for the year ending June 30, 1929. Revenues were £3,799,764, or \$18,466,853, operating expenses £3,055,446, or \$14,849,468, and interest £923,017, or \$4,485,863. In 1927-28 these figures were, respectively £3,858,051 (\$18,750,128), £2,910,811 (\$14,146,541), and £920,569 (\$4,473,965), leaving a net surplus, after charges, of £26,671 (\$129,621). A comparison of the two years shows a decline of £58,287 in operating revenue and an increase of £144,635 in expenses during 1928-29.

The decline in gross revenue is almost wholly attributable to continued loss of passenger traffic, as income from this source fell off £48,657 during the year. Lower receipts per ton-mile resulted in a decrease of £9,623 in freight revenue. Interest charges were substantially the same for the two years, so that the rest of the drop in net earnings is due mainly to the increase (approximately 5%) in operating expenses.

The total capital investment in the government lines as of June 30 stood at £23,196,608, an increase of £1,066,531 over the 1928 total of £22,130,077. The average number of miles operated increased from 3,971 to 3,993, with 4,079 miles open for traffic at the end of the year. The average capital cost per mile open was £5,687, while interest charges per mile were £231, or approximately 4% of capital.

Revenues per mile of road operated were £951, a decrease of £21 from the previous year. With an increase of £32, or \$156, per mile in operating expenses, and with interest charges showing little change, this resulted in a net loss of £44.75, or \$217, per mile.

Train miles run during the year totalled

5,984,139, an increase of 83,256 from 1927-28. At the same time the number of passengers carried dropped from 16,032,536 to 14,904,917, and there was a decrease of 32,250 tons in the amount of freight handled. This latter, and a slight drop in the average ton-mile rate, offset a longer average haul per ton, and resulted in a net decrease of £9,623 in freight revenue. The average haul per ton of freight was exactly 100 miles, an increase of 3.19 miles over the previous year, while the total ton-miles produced were 367,032,402, the largest number on record in any single year for the Western Australian Railways.

Freight traffic produced more than two-thirds of the year's gross revenue. Wheat was the most important single commodity, accounting for 23.56% of the total tonnage handled, 33.44% of the total ton-miles, 20.36% of the total freight revenue, as against 23.02%, 35.22%, and 20.48% respectively in 1927-28. Miscellaneous freight, including ores and minerals, was the second most important class, representing 18.75% of the total tonnage, as against 18.35% in the previous year, while local timber, although falling from 14.98% to 12.47% of the total, remained in third place.

At the end of the year 1928-1929 there were 406 locomotives, 489 passenger cars, and 23,953 units of freight equipment in service. These figures represent increases of five, eleven, and 349 respectively over those for the previous year. The average number of employees during the year was 9,613, an increase of 301.

The amount of equipment and the number of persons employed on June 30 were larger than at any time during the past five years. The train miles operated, the average haul per ton, and the total ton-miles carried all set new high records, while the freight tonnage handled was higher than for any year except 1927-28. On the other hand, the passenger traffic was the smallest carried in the last five years, and the net deficit was the largest reported during that period.

* * * *



On the Delaware, Lackawanna & Western

Traffic

The Southern Pacific staged a pageant, on September 14, to celebrate the opening of its line between Alturas, Cal. and Klamath Falls, Ore. The program included addresses by officers of the railroad and industries, and a parade, in which cowboys and Indians participated.

A 42-car train, carrying 9,000 mattresses, left the plant of the Simmons Company at Kenosha, Wis., over the Chicago & North Western, for shipment to San Francisco, Cal., on September 11. Three other trains of like proportions are expected by the North Western to move from Kenosha during the next few months.

The Public Utilities Commission of Colorado, on September 6, ordered the suspension of the operation of a gasoline motor car which had been substituted for a Steam-operated train on the Creede branch of the Denver & Rio Grande Western and gave the railroad three days in which to show why such a substitution should be permitted. The action followed protests made by business men and residents of Monte Vista.

The Michigan Central, in conjunction with Michigan State College, the North-east Michigan Development Bureau and Bay City creamery companies will operate a Better Dairy Sire train through Michigan, beginning September 23. The train will consist of 10 cars, including one flat car, three baggage cars and six coaches. It will carry 100 pure bred bulls which will be exhibited and sold in various towns.

The embargo against wheat at Galveston, Tex., which was supplemented by a permit system on August 21, was again modified on September 16. Under the new arrangement it is not necessary to give assurance that a steamer booking has been obtained in order to secure a permit for the movement of grain to Galveston. Local exporters, however, must give assurance that their grain will be unloaded from the cars within 10 days after arrival.

The Southern announces that, beginning September 29, the Piedmont Limited, New York to New Orleans, is to make its run in nearly three hours quicker time than at present. The train now leaves New York over the Pennsylvania at 3:40 p. m. but on the new schedule will leave at 6:35 p. m., arriving at Atlanta at 4 p. m. Central time, the next day, only ten minutes later than at present. The Aiken-Augusta Special, leaving New York at 1:10 p. m., will also be made somewhat faster.

Iron Rate Advance Postponed

On further consideration of the record and on petition of the respondent railroads the Interstate Commerce Commission has postponed from October 20 to

December 20 the effective date of its order of June 3 in Part 6 of the general rate structure investigation, prescribing a general revision on a mileage basis of the freight rates on iron and steel articles throughout Official Classification territory.

Grain Stored in Cars to Relieve Congestion

As a temporary measure toward relieving the grain congestion in the Twin Cities and Duluth terminals as well as in country elevators, the Chicago North Western is leasing box cars to elevators for use in storing grain. Cars that are unsuitable for use in transportation, are being used and are rented to any elevator that can provide track space.

Allegheny Regional Advisory Board

The Allegheny Regional Advisory Board held its regular meeting in Canton, Ohio, on September 12. The net increase of freight expected in this region in the last quarter of this year, as indicated by the reports of the commodity committees, will be about six per cent, as compared with 1928; or a demand for approximately 66,000 more cars. The increase is due largely to a single item, coal and coke, in which the expected increase is 6.7 per cent; and the Eastern Ohio coal operators expect an increase of 51 per cent. Other principal predicted increases are, iron and steel, six per cent; hollow building tile, 14 per cent; sand, stone, etc., 7½ per cent; grain, flour, etc., 8 per cent.

The next meeting of the board is to be held at Pittsburgh, Pa., on Thursday, December 12.

To Investigate Rates on Metal Containers

The Interstate Commerce Commission has ordered, on its own motion, an investigation into the lawfulness of the interstate freight rates, maintained by carriers under the Official, Southern and Western classifications, on sheet metal containers such as drums, barrels, boxes, cans, pails, etc. In a notice to interested parties the commission has explained the purpose of the investigation as follows:

"Supplements have been filed to the Official classification which would disrupt the uniformity at present existing between the Official, Southern and Western classifications in respect of the carload minimum weights of a number of sheet metal containers. There are also now pending several complaints which bring in issue the lawfulness of rates on sheet metal containers in various sections of the country.

"Only such containers are included as are now rated under the classification items indicated. It may be that the investigation should be broadened to include other sheet metal containers or that certain of those now tentatively included should be omitted. Interested parties

may submit their views to the Commission in writing on or before October 10."

Lower Rates Wanted in Canada

The extreme eastern and western regions of Canada are both seeking freight rate reductions. British Columbia will soon again come to Ottawa asking for complete removal of the so-called Rocky Mountain differential; and the Maritime ports of Halifax and St. John are asking the Dominion Railway Board for extension to those ports, for winter traffic, of the reduced grain rate of 18.34 cents which was ordered by the Board last year to be put into effect between Armstrong, Ont., (east of Winnipeg) and Quebec City, plus one cent.

The Canadian National management is still seeking action by the Supreme Court to curtail or limit the rate-reducing powers of the Railway Board.

Alberta and Saskatchewan will join British Columbia in its appeal, and the complaints will deal with not only grain rates westbound but also fruit rates eastbound.

A hearing before the Governor-in-Council will be held in Ottawa on October 15.

New Fast Trains Between New York and Chicago

The New York Central announces that, beginning September 29, it will run four twenty-hour trains daily from New York to Chicago and five from Chicago to New York, and that other trains will be quickened so that there will be three westbound and four eastbound (in addition to the above) which will make the run in 21 hours or less.

The Twentieth Century Limited, during the past year, has been operated as 2153 trains and has carried 240,000 passengers; equal nearly to three trains each way daily, and averaging 111 passengers to the train. Under the new arrangement there will be more regular trains and fewer second sections. The "Advance Twentieth Century Limited" will leave New York at 2 p. m.; the Twentieth Century Limited at 2:45 p. m. and the "Commodore Vanderbilt" at 4 p. m. The Wolverine, the present fast train which runs over the Michigan Central from Buffalo, leaving at 5:10 p. m. will be started at five o'clock, and will run through in 20 hours. Eastbound, these trains will leave Chicago at 11 a. m. (Wolverine); 12 noon, 12:40 p. m. and 2 p. m.; and in addition, the Fast Mail leaving Chicago at 9:50 a. m., will be run through in 20 hours. Altogether, the New York Central fleet between New York and Chicago will comprise 34 through Pullman trains.

The Pennsylvania announces that beginning September 29, it will have three twenty-hour trains each way daily between New York and Chicago. The Broadway Limited, now leaving New York at 1:55 will leave New York at 3 p. m.; the Pennsylvania Limited, leaving at 12:05 p. m. will leave at 2 p. m. and the new train, The Golden Arrow, will leave at 4 p. m., each running through in 20 hours. Each train will leave North

Philadelphia one hour and 40 minutes later. Eastbound, a new train will leave Chicago at 9:50 a. m.; the Broadway Limited at 11:40 a. m. and The Golden Arrow at 2 p. m. The Pennsylvania Limited, now for the first time made a twenty-hour train, has been running every day since November 19, 1881, or nearly 48 years. The Broadway Limited is 27 years old. The Pennsylvania operates eight other expresses daily between New York and Chicago westward, and seven eastward.

Livestock Train Schedules Readjusted

The Interstate Commerce Commission announced on September 13 that as a result of numerous informal complaints filed with the commission concerning unsatisfactory freight service provided for the transportation of livestock in Wisconsin, the commission in cooperation with the Wisconsin Railroad Commission has brought about a marked readjustment of practically all livestock schedules from shipping stations in Wisconsin to Chicago. The carriers which have materially shortened their schedules, or agreed to do so, are the Chicago & North Western, the Minneapolis, St. Paul & Sault Ste. Marie, the Chicago, Burlington & Quincy, the Chicago, Milwaukee, St. Paul & Pacific, and the Green Bay & Western.

Livestock taken from farms to railway loading stations during morning hours can now be marketed at Chicago the following day. Heretofore, livestock ordinarily reached Chicago the second day and frequently it was necessary to unload once or more enroute for feed, water and rest. In some instances it was necessary to assemble stock at loading stations the preceding night. Conditions have also been improved in and about the stock pens.

The commission estimates that shippers will save \$50 to \$150 or more per car, on account of less shrinkage, depending on whether shipments consist of hogs, cattle, calves or sheep.

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Atlantic Coast Line Photo

The "Miamian" Southbound on the Atlantic Coast Line

Equipment and Supplies

Locomotives

THE GREAT NORTHERN is building six Mallet type locomotives in its own shops

THE NEW YORK CENTRAL is receiving bids for 42 electric locomotives.

THE DELAWARE, LACKAWANNA & WESTERN is inquiring for two oil-electric locomotives, to be used in main line transfer and switching service in the Hoboken-New York Transfer zone.

Passenger Cars

THE DENVER & RIO GRANDE WESTERN is inquiring for two combination mail and baggage cars or two baggage cars.

THE DELAWARE & HUDSON is inquiring for two combination mail and baggage cars.

Freight Cars

THE BOSTON & ALBANY is inquiring for 300 gondola car bodies.

THE REPUBLIC IRON & STEEL COMPANY is inquiring for 43 gondola car bodies.

THE GREAT NORTHERN is constructing 300 ore cars in its shops at Superior, Wis.

THE CHICAGO & NORTH WESTERN is inquiring for 500 steel-underframe flat cars of 50 tons' capacity.

THE NORTHERN ILLINOIS COAL CORPORATION has ordered four 50-yd. air dump cars from the Koppel Industrial Car & Equipment Company.

THE SOUTHERN is inquiring for 1,000 all-steel hopper cars of 55 tons' capacity and 1,000 steel frame, double-sheathed automobile box cars of 40 tons' capacity.

THE PITTSBURGH & LAKE ERIE has ordered eight 35-yd. air dump cars from the Koppel Industrial Car & Equipment Company.

THE SAFETY CAR HEATING & LIGHTING COMPANY has ordered 50 refrigerator cars from the Pullman Car & Manufacturing Corporation.

THE NASHVILLE, CHATTANOOGA & ST. LOUIS has ordered 450 center sills from the Pullman Car & Manufacturing Corporation.

THE CENTRAL OF GEORGIA has ordered 500 gondola cars and 50 flat cars from the Pullman Car & Manufacturing Corporation. Inquiries for the equipment were reported in the *Railway Age* of August 17 and August 31.

THE NORFOLK & WESTERN has given a contract to the Virginia Bridge & Iron Company for rebuilding 1000 hopper cars. In the *Railway Age* of September 7, it was reported that the company was asking for prices on this work.

THE E. I. DUPONT DE NEMOURS & CO., has ordered 49 tank cars of 8000 gal. capacity for carrying alcohol, from the General American Tank Car Corporation. Inquiry for this equipment was reported in the *Railway Age* of September 14.

THE ATCHISON, TOPEKA & SANTA FE is inquiring for 5854 freight cars as follows:

Number	Type	Capacity Tons	Length
3500	Box	50	
500	Refrigerator	40	
300	Gen. Ser. Gondola	50	
300	Automobile	50	40 ft. 6 in.
200	Automobile	50	50 ft. 6 in.
300	Stock	40	
200	Mill Gondola	70	
150	Flat	50	
100	Tank		
104	Caboose		
200	Ballast		

Miscellaneous

THE CHESAPEAKE & OHIO has ordered a dynamometer car from the Standard Steel Car Company.

Machinery and Tools

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for a universal radial drill.

THE PULLMAN COMPANY is inquiring for 20 machine tools for use at Buffalo, N. Y.

Iron and Steel

THE LEHIGH VALLEY is inquiring for 200 tons of steel.

THE PENNSYLVANIA is inquiring for 1000 tons of steel for various bridges.

THE NEW YORK, CHICAGO & ST. LOUIS is inquiring for 600 tons of structural steel for a bridge at Cleveland, O.

THE BALTIMORE & OHIO has received bids on 170 tons of steel for a bridge at Tompkins avenue, Staten Island, N. Y.

THE BOSTON & MAINE has received bids on 100 tons of steel for use at Andover and Danbury, N. H.

THE READING has ordered 24,000 tons of rails from the Bethlehem Steel Company and 6,000 tons from the Carnegie Steel Company.

THE PENNSYLVANIA has ordered 1,900 tons of steel from the Bethlehem Steel Company and 300 tons from the American Bridge Company for electrification work on its Westchester branch.

THE NEW YORK CENTRAL has ordered 500 tons of structural steel for docks at Toledo, Ohio from the Bethlehem Steel Company.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 150 tons of steel from the American Bridge Company for grade crossing elimination work at Elmira, N. Y.

THE UNION PACIFIC has divided an order for 48,000 tons of rail among the

Colorado Fuel & Iron Company, the Illinois Steel Company and the Inland Steel Company. The order is accompanied by one for 15,000 tons of track fastenings.

THE NEW YORK CENTRAL has ordered 1725 tons of steel from the Harris Structural Steel Company for use on the viaduct at Two-Hundred-Forty-First street, New York and 115 tons of steel from the McClintic-Marshall Company for a passenger station at Tremont, N. Y.

Signaling

THE DELAWARE, LACKAWANNA & WESTERN has ordered from the Union Switch & Signal Company material for extensive reconstruction of automatic block signal-

ing and interlocking on those sections of its road now being electrified between Hoboken, N. J., and Dover. The new work applies to the line through Morristown and the lines to Montclair and Gladstone. These lines are two-track, three-track and four-track, together with a short length of single track; total length of road 70 miles, length of track 160 miles. Color-light signals, with alternating current track circuits, will be used throughout. There are 12 electro-pneumatic inter-lockings and 10 electro-mechanical to be modified. At Grove street, Hoboken, there will be a new electro-pneumatic machine of 71 levers. The order includes 330 signals, 1600 relays, 550 impedance bonds, 650 track transformers and 2000 rectifiers.

Supply Trade

Howard Mull, manager of railroad sales of the Warren Tool & Forge Company, Warren, Ohio has been promoted to vice-president.

Perry W. Olliver, representative of the Sullivan Machinery Company at El Paso, Tex. has been promoted to manager of the San Francisco, Cal. office to succeed Ray P. McGrath who died on August 25.

O. G. Newmann, formerly assistant manager of the Cincinnati, Ohio warehouse of the Jones & Laughlin Steel Corporation, has been appointed representative of the Inland Steel Company with headquarters at Chicago.

The Johns-Manville Corporation, New York, has completed arrangements with the Insulite Company, Minneapolis, Minn., for the manufacture by the latter company of insulating lumber to be made to Johns-Manville specifications for sale by Johns-Manville in the territory west of the Allegheny mountains. No other arrangements with the Insulite Company or the United States Gypsum Company, Chicago, have been considered and the rumors of a probable merger at any time are wholly without foundation.

H. Paul Cleaver has been appointed superintendent of the Philadelphia plant of the J. G. Brill Company, succeeding O. C. Kahler who resigned recently on account of ill health. Mr. Cleaver, after graduating as a mechanical engineer from the University of Delaware in 1918, became associated with the Harlan plant of the Bethlehem Shipbuilding Corporation, Wilmington, Del. In 1920 he was appointed general foreman of the car department, and the following year became assistant superintendent. In 1926 he left that position to join the engineering staff of the J. G. Brill Company and the following year was appointed general foreman. Early in 1929 he was appointed assistant superintendent and now becomes superintendent of the Philadelphia plant as above noted.

H. O. K. Meister, who has been appointed assistant general manager of the Hyatt Roller Bearing Company, Newark, N. J., has been associated with the company for over 15 years. Mr.



H. O. K. Meister

Meister served as assistant general sales manager and later as general sales manager of the company at Newark since 1925, and prior to that time he was manager of the company's western division at Chicago.

Trade Publication

OIL-ELECTRIC RAIL CAR.—"The Oil-Electric Rail Car" is the title of folder D.M.F. 5183 issued by the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa. This folder announces a new Diesel engine weighing only 23 lb. per horsepower. The engine has been proven thoroughly in service and the fuel cost has been determined to be 75 per cent less than for the gas engine, even though maintenance costs are approximately the same. The carbon monoxide content of the products of combustion is much less in the oil engine.

Construction

BALTIMORE & OHIO.—This company is receiving bids for the elimination of two grade crossings at Lorraine and Tompkins avenues on its Staten Island Rapid Transit Lines.

CANADIAN NATIONAL.—This company received bids on September 19 for the construction, exclusive of ballasting, tracklaying, telegraph lines and buildings, of a branch line on Prince Edward Island. The new line runs from Lake Verde Jct. on the Murray Harbor subdivision to a point on the Georgetown sub-division one and one-quarter miles west of Pisquid. The distance is about ten miles. It was reported in the *Railway Age* of August 17 that this construction had been authorized and that bids would be called for in September.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—The Interstate Commerce Commission has authorized the construction of an extension of about one mile to a connection with the Cowlitz, Chehalis & Cascade in Lewis county, Wash.

DELAWARE, LACKAWANNA & WESTERN.—Permission has been granted to this company by the Public Service Commission of New York to extend an existing sidetrack across Sizer street, Syracuse, N. Y.

DELAWARE, LACKAWANNA & WESTERN.—Plans submitted to the Public Service Commission of New York by this company for the elimination of grade crossings in Elmira, N. Y., have been approved. The crossings to be abolished are those at Madison avenue Lake and Dickinson streets, East Washington avenue, East Fifth street, East Clinton street, Sullivan street, East Church street and John street.

ERIE.—A contract has been let to Allen N. Spooner & Son, Inc., New York, for extensions and alterations to a car heating plant and warming house at Edgewater, N. J.

ERIE.—General plans submitted by this company for the elimination of Kings Crossing over the Nunda Portageville Connection highway at Portage, Livingston County, New York, have been approved by the Public Service Commission of New York.

GRAND TRUNK WESTERN.—Plans have been announced by this company for the electrification of the main line between Detroit, Mich., and Pontiac, 26 miles, and the construction of a combined passenger station and eight-story office building on Jefferson avenue between Dequindre and Orleans streets at Detroit. The plans for the electrification include electrified suburban service and the construction of an automobile speedway between Jefferson avenue and Pontiac which will be supported on the columns carrying the overhead wires. The ultimate cost of the entire development will be \$100,000,000.

of which an immediate expenditure of \$25,000,000 is proposed. As the project is completed the present Brush street station at Detroit will be abandoned, through and suburban passenger trains will be handled by electric locomotives and between Milwaukee Junction and Brush street all switching movements will be performed by diesel electric locomotives. It is expected that construction of the first units of the project will be undertaken shortly after January 1, and that the entire development will be completed in 1931. The proposed construction is subject to the approval of the Michigan Public Utilities Commission.

GREAT NORTHERN.—This company has filed with the Interstate Commerce Commission an amended application asking authority to construct and operate an extension in Montana from Richey to Winnett, 195 miles, to acquire trackage rights over a line of the Chicago, Milwaukee, St. Paul & Pacific between Winnett and Grass Range, 21 miles, and either to complete and operate its partly constructed line between Grass Range and Lewistown 32.5 miles, or to operate over the line of the St. Paul, 37.5 miles.

INTERNATIONAL-GREAT NORTHERN.—This company contemplates the construction of new wheel shop facilities at Percival Yards, Houston, Tex., at an estimated cost of \$39,000, exclusive of mechanical equipment. The project includes the construction of a steel frame building on concrete foundations which will be covered with rigid corrugated asbestos and equipped with electric trolley cranes for handling loose and mounted wheels, at a cost of \$19,000. Bids are being received for the construction of the building and the remainder of the work will be handled by company forces.

LOS ANGELES & SALT LAKE.—A contract for the construction of a one-story frame structure, with dimensions of 149 ft. by 200 ft., for use as a walnut shelling house, on Seventh street near the Los Angeles river, Los Angeles, Cal., has been let to the Lynch Construction Company, Los Angeles, at a cost of approximately \$50,000.

LOS ANGELES TERMINAL EXCHANGE, INC.—The Interstate Commerce Commission has ordered this company to show cause, in writing, within 60 days, why the commission should not dismiss its application for authority to construct railroad tracks connecting the lines of railroad serving Los Angeles, Cal., through a subway with a proposed union passenger station. The commission points out in its order that it has issued a certificate authorizing the Los Angeles & Salt Lake, the Southern Pacific and the Atchison, Topeka & Santa Fe to rearrange their tracks for the operation of a union passenger station but that there is now pending in the Supreme Court of the United States a proceeding for the determination of the jurisdiction of the commission to require the construction and operation by the railways of a union passenger station in Los Angeles and that the facilities proposed by the Terminal Exchange are

substantially similar to those involved in the certificate already issued. In the court case the city of Los Angeles is seeking an order requiring the commission to require the railroads to build the station. The commission, which has appealed from a decision of the District of Columbia Court of Appeals that it had such power, has filed in the Supreme Court a brief stating that Congress has not authorized the commission to require the building of new stations in lieu of existing individual terminals.

LOUISVILLE & NASHVILLE.—This company has undertaken a grade separation project at Birmingham, Ala., which, including the construction of additional tracks, the rearrangement of present tracks, grading and miscellaneous concrete work, will involve an expenditure of about \$118,000. A contract for constructing an embankment and miscellaneous track work south of Avenue B in connection with this project has been awarded to the C. G. Kershaw Contracting Company, Birmingham, at a cost of \$28,000. The greater part of this construction will be performed by company forces. A contract for the construction of 1,850 lineal feet of retaining wall between Fourteenth and Eighteenth streets at Birmingham has been let to Walter T. Weaver, Birmingham, at a cost of \$31,000. The total cost of the construction of this retaining wall will be \$38,000.

MISSOURI-KANSAS-TEXAS.—A contract for the construction of a 300-ton reinforced concrete coaling station and sand handling plant at North McAlester, Okla., to replace a timber structure destroyed by fire has been let to Fairbanks, Morse & Co., Chicago, at a cost of \$28,000. A contract has been awarded to T. E. Wiggins, Inc., Oklahoma City, Okla., for the construction of a grade separation structure at Frisco avenue, Tulsa, Okla. The cost of this project, about \$60,000, will be borne equally by the railroad and the city of Tulsa. This company and the city of Dallas (Tex.) have reached an agreement for the construction of a highway subway under the railroad's tracks at Fitzhugh avenue, Dallas. It was expected that bids for the project, which involves an expenditure of about \$83,000, would be received about September 15.

MICHIGAN CENTRAL.—A contract has been let to the Dominion Construction Company for the reconstruction of three steel bridges on concrete supports at Niles, Mich., at a cost of \$80,000. Contracts have been awarded to Fairbanks, Morse & Co., Chicago, for the construction of coaling stations at Clarendon, Mich., and West Detroit, at costs of \$38,000 and \$100,000 respectively. Construction is now being started by the General Railway Signal Company on the installation of car retarders in the West Detroit westbound freight yard. With grading and track alterations, which have been completed, this project involves the expenditure of about \$846,000. Other improvements recently undertaken which are being carried out wholly or in part by company forces or by contract, in-

clude, with their costs, alterations to the passenger station facilities at Jackson, Mich., \$70,000; the extension of 15 stalls of the roundhouse at Jackson, \$41,000; the construction of a freight station at Windsor, \$48,000; the replacement and extension of the interlocking plant at West Detroit, \$190,000; the construction of a new switching track at the same point, \$85,000; track alterations at Lansing, Mich., and North Lansing, \$105,000. The Michigan Central is also undertaking, in conjunction with various municipalities in the vicinity of Detroit, the construction of grade separation structures which involve a total expenditure on the part of the railroad of about \$840,000. These projects are located at Green and Central avenues, Detroit, where the railroad will bear \$105,000 of the cost; at Southfield road, Ecorse, \$120,000; Outer Drive, Dearborn, \$195,000; West Fort street, Detroit, \$130,000; Central avenue, Toledo, Ohio, \$290,000.

NEW YORK CENTRAL.—The Public Service Commission of New York has approved plans submitted by this company for the elimination of Hilts crossing at Fowler, St. Lawrence County, New York.

NEW YORK CENTRAL.—This company will receive bids until September 24 for the construction of platforms, canopies, driveways, drainage, track work, retaining walls, subway, duct lines and all incidental work in its Sixtieth street terminal between West Sixtieth and West Seventy-Second streets, New York City.

NEW YORK, CHICAGO & ST. LOUIS.—A contract has been awarded to the Hecker-Moon Company, Cleveland, Ohio, for track laying in connection with the construction of second main track between Montmorenci, Ind., and Templeton, 10 miles. The cost of the work covered by this contract is \$36,700. A contract for bridge work on second main track between the same points has been awarded to the Industrial Construction Company, St. Louis, Mo., at a cost of \$52,300.

NORTHERN PACIFIC.—This company is receiving bids for the construction of a three point support 125-ft. deck turntable at Mandan, N. D., to cost \$52,500. Plans are being prepared for the extension of a portion of the roundhouse at Mandan to provide stalls 140 ft. in length to accommodate the new single-expansion Mallet locomotives to be placed in service at that point. A contract has been let to E. J. Dunnigan, Inc., St. Paul, Minn., for the construction of a three-span deck plate girder bridge over Cedar Creek, 10 miles west of Glendive, Mont. The bridge will be 275 ft. long and will involve an expenditure of \$66,000. A contract has been awarded to the same company for the reconstruction of the East Seventh street bridge and Bridge No. 3 at Maryland street, St. Paul, at costs of \$62,400 and \$41,000 respectively. Bids have been closed for the enlargement of culverts between Medora, N. D., and Glendive, Mont., where washouts resulted in damage to the permanent way in June, 1929. This work will be undertaken at a cost of about \$50,000.

PENNSYLVANIA.—This company has been directed by the Public Service Commission of New York to prepare the necessary plans for the elimination of the grade crossing at Blossom road, near Spring Brook station, Erie County, New York. These plans, and an estimate of cost to be prepared by the Department of Public Works, are to be submitted to the Commission for approval.

RICHMOND, FREDRICKSBURG & POTOMAC.—This company has awarded to the Whiting-Turner Construction Company of Baltimore a contract for grading in connection with track extensions at Potomac Yard, Va. The work involves the

relocation of certain tracks in the north-bound advance yard, and will require the construction of an embankment containing approximately 100,000 cu. yd. of material and the extension of a concrete arch containing 600 cu. yd. of concrete. It was reported in the *Railway Age* of August 31 that this work was contemplated.

TEXAS & PACIFIC.—A contract has been let to Gifford-Hill & Co., Dallas, Tex., for the grading for the site for a locomotive terminal at Big Spring, Tex. The work involves the excavation of about 150,000 cu. yd. of earth. It is planned eventually to construct a roundhouse and other terminal buildings on the completed site.

is to bring about the removal of the Grand Trunk tracks from Division street west of Michigan street and accomplishment of the grade separation program of that road and the city of South Bend.

OLD COLONY.—*Stock.*—This company has applied to the Interstate Commerce Commission for authority to issue \$964,500 of additional stock to pay for improvements made to its property by the New York, New Haven & Hartford, lessee.

ST. LOUIS-SAN FRANCISCO.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire control by lease of the Miami Mineral Belt, of which it owns the entire capital stock.

ST. LOUIS SOUTHWESTERN.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to extend its line at Truman, Ark., by acquisition under contract of a portion of the line of the Cairo, Truman & Southern. The latter company has also applied for authority, if the application of the Cotton Belt is granted, to abandon those parts of its line from a point south of Truman to Weona, Ark., 10 miles, and from the intersection with the Arkansas Short Line to Arthur, Ark., 4.75 miles.

WHEELING & LAKE ERIE.—*Dividend.*—This company on September 17 declared a dividend of \$24.50 on its 7 per cent prior lien stock. The disbursement is a back dividend covering the period from May 1, 1918, to November 1, 1921, and is payable October 1 to stockholders of record September 26.

Average Prices of Stocks and of Bonds

	Sept. 17	Last week	Last year
Average price of 20 representative railway stocks.	158.07	158.44	123.05
Average price of 20 representative railway bonds.	89.54	89.61	93.58

Dividends Declared

Baltimore & Ohio.—Preferred, 1 per cent, quarterly; Common, 1 3/4 per cent, quarterly, both payable December 2 to holders of record October 11.

Cleveland, Cincinnati, Chicago & St. Louis.—Common, 2 per cent, quarterly; Preferred, 1 1/4 per cent, quarterly, both payable October 19 to holders of record September 27.

Kansas City Southern.—Common, \$1.25, quarterly, payable November 1 to holders of record September 30; Preferred, \$1.00, quarterly, payable October 15 to holders of record September 30.

Mahoning Coal Railroad.—Common, \$12.50, quarterly, payable November 1 to holders of record October 15.

New York Central.—2 per cent, quarterly, payable November 1 to holders of record September 27.

Pittsburgh, Bessemer & Lake Erie.—Common, \$.75, payable October 1 to holders of record September 15.

Pittsburgh, Fort Wayne & Chicago.—Common, 1 3/4 per cent, quarterly, payable October 1 to holders of record September 10; Preferred, 1 1/4 per cent, quarterly, payable October 8 to holders of record September 10.

Southern.—Common, 2 per cent, quarterly, payable November 1 to holders of record October 1; Preferred, 1 1/4 per cent, quarterly, payable October 15 to holders of record September 23.

Wabash.—Preferred A, \$1.25, quarterly, payable November 25 to holders of record October 25.

Railway Finance

BUFFALO, ROCHESTER & PITTSBURGH.—*Proposed Acquisition by B. & O.*—The Baltimore & Ohio and the Rochester & Pittsburgh Coal Company have filed with the Interstate Commerce Commission briefs supporting the application of the Baltimore & Ohio for authority to acquire control of the B. R. & P. by acquisition of stock and the Wabash, Delaware & Hudson and Pittsburgh & West Virginia have filed briefs opposing the application. The Delaware & Hudson asks for the application of the same rule on which a majority of the commission joined in denying its application for authority to acquire control of the B. R. & P., namely that determination of the allotment of the B. R. & P. should await a determination as to the disposition of other lines in eastern territory in connection with a consolidation plan, and that determination of the question now would be premature. It also states that it proposes soon to present an application for the formation of an important and useful system of railroads which will include the B. R. & P. and that no reason for hurried and exceptional treatment has been presented. The P. & W. V. and Wabash also take the position that action on the application at this time would be premature and the former says that the commission might eventually decide that it should have the B. R. & P. The Pennsylvania filed a brief taking the position that the disposition of the B. R. & P. should be withheld until after further consideration of the general consolidation question.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to nominally issue \$1,637,000 first and general mortgage 5 per cent bonds in exchange for an equal amount of unsold 6 per cent bonds.

CANADIAN NATIONAL.—*Financial Reorganization.*—The Department of Justice of the Canadian Government has denied the application of Grand Trunk Railway minority stockholders in London for a fiat permitting them to take their claim

against the Canadian National into the courts. These minority stockholders have been organized into a joint stock company in an endeavor to have the claims in respect to \$180,000,000 in preferred and common stocks of the Grand Trunk considered in any plan for the financial reorganization of the Canadian National. Of the \$180,000,000 in dispute, \$116,500,000 is common stock and approximately \$64,000,000 is preferred.

CHICAGO & NORTHWESTERN.—*Equipment Trust Certificates.*—The Interstate Commerce Commission has authorized an issue of \$8,775,000 of equipment trust certificates to be sold at not less than 94.297.

CHICAGO & NORTH WESTERN.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its Rib Falls line, Marathon county, Wis., 4.74 miles.

CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Emerald to Woodville, Wis., 9.59 miles.

FAIRPORT, PAINESVILLE & EASTERN.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue and sell \$512,000 of first mortgage gold bonds, the proceeds to be used in connection with the construction of an extension from Madison to Austinburg, Ohio. The bonds are to be sold at 94 to the Cleveland Trust Company.

GRAND TRUNK WESTERN.—*Relocation.*—This company and its subsidiary, the Grand Trunk Western Railway Company, have applied to the Interstate Commerce Commission for permission to relocate its line in South Bend, Ind. The proposal involves the construction of a connection between the Grand Trunk line at Greenlawn avenue in that city, and the New York Central line 1.29 miles; trackage rights over 1.54 miles of the New York Central line and the abandonment of 0.96 miles of the present Grand Trunk line. The purpose of the plan

Railway Officers

Executive

Thomas F. Cunningham has been elected president of the New Orleans Public Belt, with headquarters at New Orleans, La., succeeding **John H. Murphy**, deceased.

C. E. Smith, vice-president of the New York, New Haven & Hartford, with headquarters at New Haven, Conn., has been placed in charge of the department of purchases and stores, succeeding **N. M. Rice**, deceased. In addition to his new duties, Mr. Smith will continue to assist the president of the New Haven in engineering matters.

Charles Elsey, who has been elected executive vice-president of the Western Pacific, with headquarters at San Francisco, Cal., has been connected with that company for nearly 22 years. He was born at Oakland, Cal., on September 18, 1880, and entered railway service in October, 1907, during the early construction period of the Western Pacific, as assistant treasurer. Later Mr. Elsey was promoted to treasurer, and in 1921 he was elected vice-president in charge of finance, with headquarters at San Francisco. His election to executive vice-president of the Western Pacific became effective on September 3.

Frank H. Alfred, vice-president in charge of operation of the Pere Marquette, with headquarters at Detroit, Mich., has been granted a year's leave of absence, which became effective on September 17. **Robert J. Bowman**, assistant vice-president of the Erie, with headquarters at New York, has been elected vice-president in charge of operation of the Pere Marquette, succeeding Mr. Alfred. **L. L. White**, assistant general manager of the Western district of the Erie, with headquarters at Youngstown, Ohio, has been promoted to assistant to the president of that railroad, with headquarters at New York, to replace Mr. Bowman.

Everett E. Adams, assistant to the president of the Union Pacific system in charge of purchases, engineering and standards, with headquarters Omaha, Neb., has also been appointed vice-president. Mr. Adams was born on September 12, 1881, at Watertown, Mass., and has been in railroad service for more than 24 years. After graduating from the University of California in 1904 he first became connected with railways on August 1, 1905, as a mechanic on the Southern Pacific. Later he was transferred to the engineering department of that company where he was engaged successively as an assistant engineer and as superintendent of the railroad's pipe lines. From 1907 to 1913 he acted as assistant engineer of the Union Pacific and assistant consulting engineer of the

Southern Pacific at Chicago, and upon dissolution of the two systems in the latter year he was appointed consulting engineer of the Union Pacific at New York. During federal control of the



Everett E. Adams

railroads, Mr. Adams was assistant director of capital expenditures of the United States Railroad Administration at Washington, D. C., returning to the Union Pacific as consulting engineer at New York on January 1, 1920. On March 1 of that year he was appointed assistant to the president, in charge of purchases, engineering and standards, with headquarters at Omaha, Neb. His appointment as vice-president and assistant to the president of the Union Pacific system became effective on September 1.

Jesse L. Haugh, assistant to the president of the Union Pacific system, with headquarters at Omaha, Neb., has also been appointed vice-president. Mr.



Jesse L. Haugh

Haugh, who has been in railway service for 25 years, was born at Sodus, Mich., on October 17, 1887. After spending two years at the University of Michigan and one year at the University of Wisconsin he entered railroad service in

1904 as a rodman on the Cleveland, Cincinnati, Chicago & St. Louis. In the following year he became a draftsman on the Chicago & North Western, and was then advanced successively through the positions of topographer, instrumentman, resident engineer and assistant engineer. From 1918 to 1920 Mr. Haugh served as engineering assistant to the regional director of the Northwestern region of the United States Railroad Administration where he remained until March 1 of the latter year, when he was appointed assistant to the president of the Union Pacific. His appointment as vice-president and assistant to the president of the Union Pacific system became effective on September 1.

Operating

B. L. Tyler has been appointed trainmaster of the Flint sub-division of the Grand Trunk, with headquarters at Battle Creek, Mich., succeeding **H. E. Bailes**, transferred.

R. F. DeForest has been appointed superintendent of freight transportation of the Michigan Central, with headquarters at Detroit, Mich., succeeding **C. H. Bieber**, superintendent of car service, who has retired.

S. H. McCartney has been appointed special representative of the operating department of the Southern Pacific in the Northern district, with headquarters at Alturas, Cal. **S. J. Nazor** has been appointed trainmaster on the Shasta division, with headquarters at Alturas.

William White, superintendent of the Mahoning division of the Erie, with headquarters at Youngstown, Ohio, has been promoted to assistant general manager of the Western district, with headquarters at the same point. **R. H. Boykin**, superintendent of the New York Terminal division, with headquarters at Jersey City, N. J., has been transferred to the Mahoning division to replace Mr. White.

R. C. Randall, assistant superintendent of the Erie, with headquarters at Jersey City, N. J., has been appointed superintendent of the Terminal division, with the same headquarters, succeeding **R. H. Boykin**, who has been appointed superintendent of the Mahoning division. **E. J. Stubbs** will succeed Mr. Randall as assistant superintendent at Jersey City. **P. W. Johnston** has been appointed assistant superintendent of transportation, succeeding **J. F. Collins**, transferred. **O. A. Frausen** has been appointed superintendent of the lighterage department, replacing **E. J. Bauer**, who has also been transferred.

William P. Howard, superintendent of the Owensboro & Nashville division of the Louisville & Nashville, with headquarters at Russellville, Ky., has retired after more than 53 years of service with that company. He was born on December 11, 1862, at Townsend, Vt., and en-

tered railroad service on January 1, 1876, as a station agent apprentice on the Louisville & Nashville at Gallatin, Tenn. He was advanced successively through the positions of telegraph operator, ticket seller, clerk to roadmaster, relay operator, train dispatcher and chief dispatcher, and in March, 1896 he was promoted to master of trains on the Second division at Nashville, Tenn. On March 1, 1905, he was further promoted to superintendent of the Owensboro division, a position he held until his retirement from active duty on August 1.

Manley T. Skewes, who has been promoted to superintendent of the River and Iowa & Minnesota divisions of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Minneapolis, Minn., has been in the service of that railway for 37 years. He was born at Yorkville, Wis., on October 12, 1873, and after attending the public schools of Racine County and Racine, Wis., entered railroad service in 1892 as telegraph operator on the Chicago & Milwaukee division. Mr. Skewes was transferred to the River divi-



Manley T. Skewes

sion in 1894 and for the following 10 years occupied various positions on that division, including those of operator and cashier. In 1904, he was advanced to train dispatcher on the River division, where he remained until 1912, when he was promoted to chief dispatcher of the River and Iowa & Minnesota divisions. In August, 1928, he was further promoted to assistant superintendent of the same divisions, with headquarters at Minneapolis, his promotion to superintendent becoming effective on September 1.

Traffic

F. Miranda, general agent of the freight department of the Missouri Pacific at Mexico City, D.F., has been appointed general agent of the freight and passenger departments at the same point. **A. Molinar**, chief clerk in the passenger department at Mexico City, has been promoted to assistant general agent of the passenger department at the same point.

A. R. Atkinson, assistant general freight agent of the Southern Pacific at Houston, Tex., has been promoted to general freight agent in charge of rates, tariffs and divisions on the Texas lines, with headquarters at the same point. **E. McClannahan**, assistant general passenger agent at Houston, has been transferred to San Antonio, Tex., to succeed **Tom Hood**, who has been transferred to Houston, to replace Mr. McClannahan.

B. R. Harris, general agent of the freight department of the Chicago Great Western at Minneapolis, Minn., has been promoted to assistant general freight agent, with headquarters at Chicago, succeeding **G. R. MacLean**, who has resigned to become connected with the Western Trunk Line Committee. **W. E. Semmer**, coal traffic agent at Chicago, has been promoted to general agent of the freight department at Minneapolis, succeeding Mr. Harris.

W. D. McVey, general freight and passenger agent of the Rutland, with headquarters at Rutland, Vt., has been appointed assistant freight traffic manager of the New York Central Lines west of Buffalo, and the Ohio Central Lines, with headquarters at Chicago. **Samuel W. Carder**, assistant general freight agent of the Michigan Central, with headquarters at Buffalo, N. Y., has been appointed general freight and passenger agent of the Rutland, to succeed Mr. McVey.

Walter S. Yeatts, who has been appointed assistant freight traffic manager of the Pennsylvania, with headquarters at Philadelphia, Pa., was born on March 7, 1876, at Camden, N. J. He was educated at William Penn Charter School and Princeton University, and entered railroad service in June, 1898, in the manager's office of the Empire Line at Philadelphia. In 1900 he was appointed rate clerk of the Pennsylvania at the same point and three years later he was promoted to the position of chief rate clerk. In 1904, Mr. Yeatts became freight solicitor at Wilmington, Del., later serving in the same capacity at Pittsburgh and Harrisburg. He was appointed Canadian freight agent at Toronto, Ont., in May, 1912, serving in that capacity for two years, then being appointed special agent at Philadelphia. In 1918, Mr. Yeatts became general freight agent of the Cumberland Valley Railroad at Chambersburg, Pa. During the World War he served as freight assistant on the staff of the regional director of the United States Railroad Administration and on the Fuel Commission, Allegheny region. Mr. Yeatts was appointed assistant to the traffic manager of the Pennsylvania in March, 1920, the position he held at the time of his recent promotion.

C. V. Gallagher, who has been promoted to assistant freight traffic manager of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Chicago, has been connected with that

railway for more than 19 years. He entered railway service as chief rate clerk in the traffic department of the Union Pacific at Omaha, Neb. Later he became chief clerk of the traffic department at the same point, where he remained until 1906 when he was appointed contracting freight agent for the Soo Line at Chicago. Six years later Mr.



C. V. Gallagher

Gallagher was advanced to general agent at Chicago and in 1914 he was promoted to assistant general freight agent, with headquarters at the same point. During the period of the World War, from 1917 to 1921, he served as assistant general traffic manager of the Food Administration Grain Corporation, the United States Grain Corporation and the Belgian Relief Commission at Chicago, under Herbert Hoover, food administrator, and Julius H. Barnes, United States wheat director. In 1921, Mr. Gallagher returned to the Soo Line as assistant general freight agent at Chicago. His promotion to assistant freight traffic manager became effective on September 1.

Mechanical

G. G. Lynch, assistant mechanical engineer of the Atlantic Coast Line, with headquarters at Wilmington, N. C., has been appointed mechanical engineer-equipment, with the same headquarters.

C. S. Patton, who has been appointed general superintendent of motive power of the Seaboard Air Line, with headquarters at Savannah, Ga., was born on April 4, 1871, at Telford, Tenn. He was educated in the schools of that city and entered railroad service with the Norfolk & Western in September 1892 as brakeman. He was later appointed fireman and from February 1897, to November 20, 1901, he served as engineer for the same road. Mr. Patton entered the service of the Seaboard Air Line as engineer on the latter date and in February of the following year he was promoted to road foreman of engines. He became trainmaster in August, 1905, and six years later he was appointed master mechanic, serving in that capacity

until September, 1916, when he was promoted to the position of superintendent, which position he held until July 1918. Mr. Patton was appointed superintendent



C. S. Patton

of motive power on the latter date, continuing in that capacity until September 6, 1929, at which time his appointment as general superintendent of motive power became effective.

Purchases and Stores

J. H. Brown, district storekeeper on the Canadian National at Toronto, Ont., has been promoted to assistant general storekeeper of the Atlantic region, with headquarters at Moncton, N. B. **Samuel Sneddon**, district storekeeper at Winni-

peg, Man., has been transferred to Toronto, to succeed Mr. Brown. **Charles S. Argyle**, district storekeeper at Saskatoon, Sask., has been transferred to Edmonton, Alta., succeeding **Stewart E. Keillor**, who has been transferred to Winnipeg to replace Mr. Sneddon. **Charles B. Wright**, storekeeper at Point St. Charles, Que., has been promoted to district storekeeper at Saskatoon, succeeding Mr. Argyle.

Engineering, Maintenance of Way and Signaling

H. Horn has been appointed consulting engineer of the Chesapeake Beach Railway, with headquarters at Washington, D. C. He will exercise direct supervision over track, bridges and buildings.

R. B. Ball, who has been promoted to assistant chief engineer of the Atchison, Topeka & Santa Fe system, with headquarters at Chicago, has been connected with the engineering department of that railway for more than 26 years. He was born in Missouri and graduated from Leland Stanford University in 1904. Previous to that time, Mr. Ball had served for a year in the engineering department of the Coast Lines of the Santa Fe. In 1904, he re-entered Santa Fe service as an instrumentman, then advancing through various positions on the Coast Lines, including that of district engineer, with headquarters at Los Angeles, Cal., to which he was appointed in December,

1912. In July, 1918, he was promoted to chief engineer of the Coast Lines, with headquarters at Los Angeles. Mr. Ball's



R. B. Ball

further promotion to assistant chief engineer of the Santa Fe system became effective on September 1.

Obituary

H. C. Holabird, retired general passenger agent of the Erie, with headquarters at Chicago, died in that city on September 13. Mr. Holabird had been connected with the Erie for 48 years. He was appointed assistant general passenger agent at Chicago in 1905, and was promoted to general passenger agent at the same point in 1920, retiring from active service in March, 1928.



Ewing Galloway

Overlooking the New Haven Yards Adjacent to Its Station at Providence, R. I.